



U.S. Department
of Transportation
**Federal Railroad
Administration**

GUIDE TO MEETING FEDERAL RAILROAD SAFETY REQUIREMENTS



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Section 1:

Purpose

Purpose

The purpose of this manual is to help small railroads gain a basic knowledge of the Federal railroad safety regulations. The manual is not a complete reference. It deals with administrative requirements and not the technical aspects of operating a railroad safely. It is to be used as a guide. It should not be used as the basis for legal interpretations.

Federal railroad safety regulations are contained in the Title 49 of the Code of Federal Regulations. It is the responsibility of the railroads to know these regulations. These regulations may be purchased from:

**Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
(Telephone: 202-783-3238)**

Changes made to regulations are reported in the *Federal Register*.

Section 2: Background

Background

Federal railroad safety regulations are administered and enforced by the U.S. Department of Transportation, Federal Railroad Administration (FRA). Under the direction of the Federal Railroad Administrator, the Office of Safety plans, develops, implements, and administers railroad safety practices in the railroad industry and States.

The Office of Safety is headquartered in Washington, DC. The headquarters staff provides guidance and support to railroad safety inspectors and managers in eight FRA regional offices.

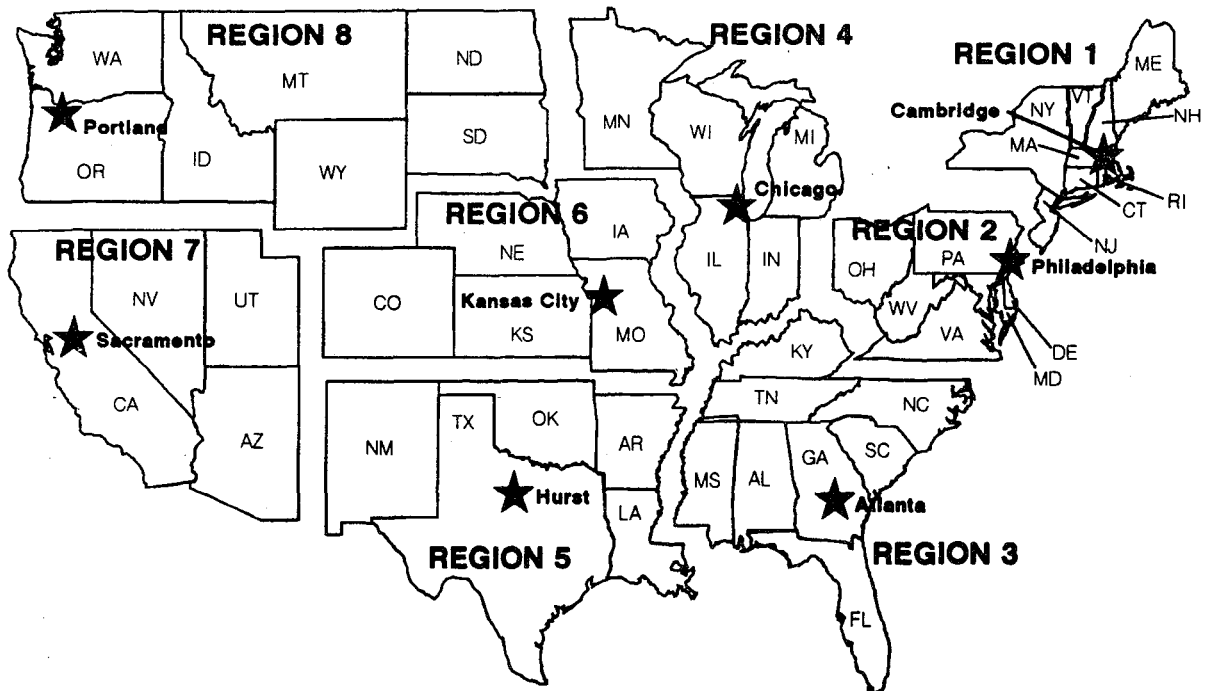
Each regional safety office is led by a Regional Director, responsible for the overall planning, direction, organization, resource management, administration of assigned safety programs, and evaluation of program performance throughout the region. Each region within the assigned jurisdiction conducts inspection activities to ensure the safe operations of railroads. The inspection activities include safety inspection of railroad operating practices, motive power and equipment, signal and train control, hazardous materials, and track and structures; investigation of accidents and complaints; and appearance in the courts in support of citations written as a result of inspection activities.

FEDERAL RAILROAD ADMINISTRATION

OFFICE OF SAFETY REGIONS AND FIELD OFFICES

Prepared by the
Office of Management Systems
As of July 1992

Federal Railroad Administration REGIONS



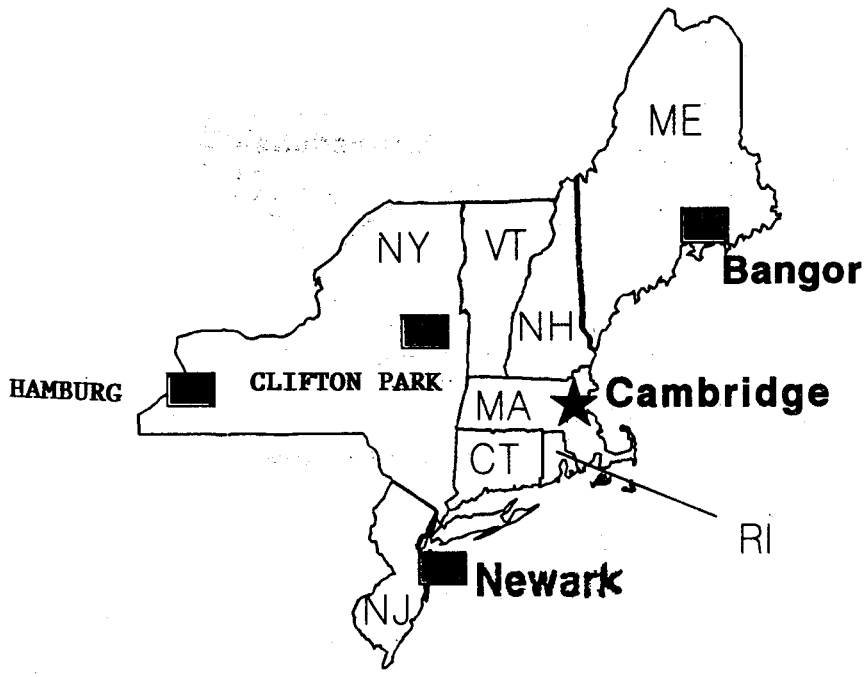
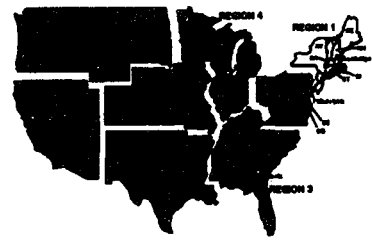
Prepared by the
Office of Management Systems

Federal Railroad Administration

REGION 1

Director: M. McKeon

(617) 494-2321



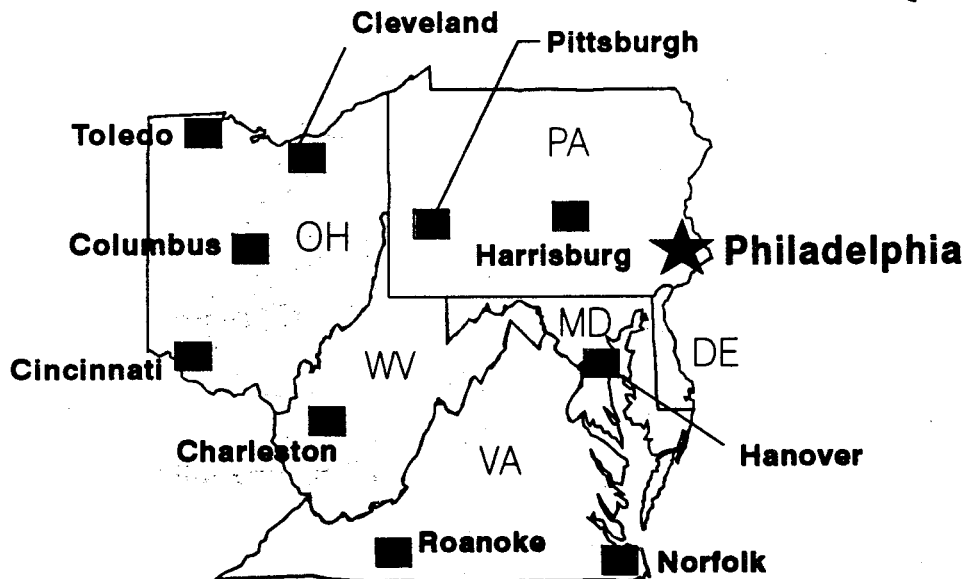
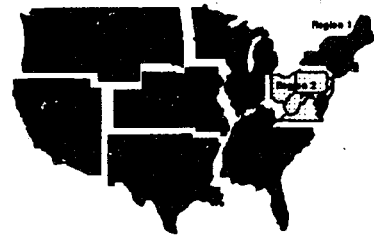
Prepared by the
Office of Management Systems

Federal Railroad Administration

REGION 2

Director: J. Megary

(215) 597-0750

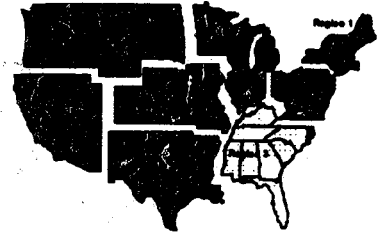


Prepared by the
Office of Management Systems

Federal Railroad Administration

REGION 3

Director: C. Clune
(404) 347-2751

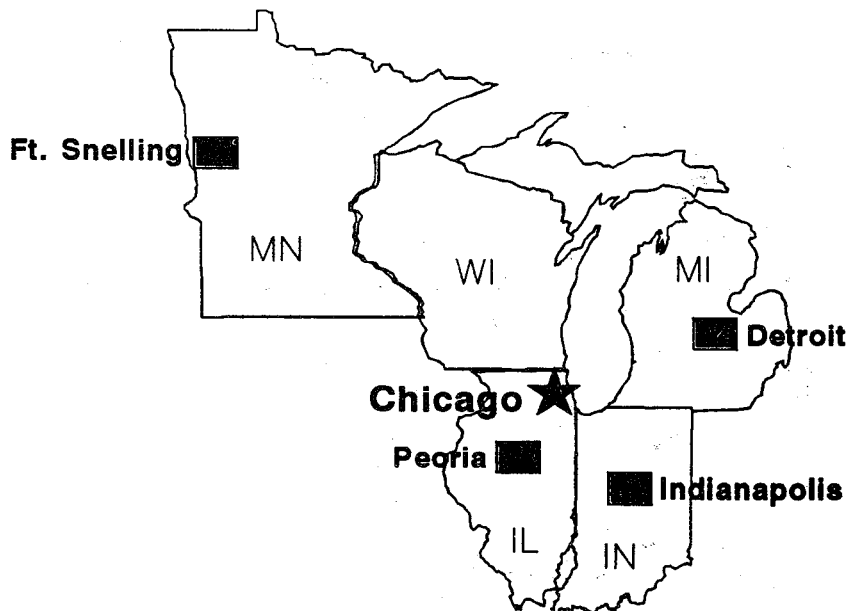
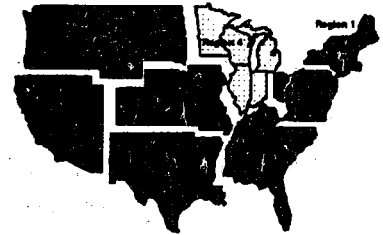


Prepared by the
Office of Management Systems

Federal Railroad Administration

REGION 4

Director: R. McCord
(312) 353-6203



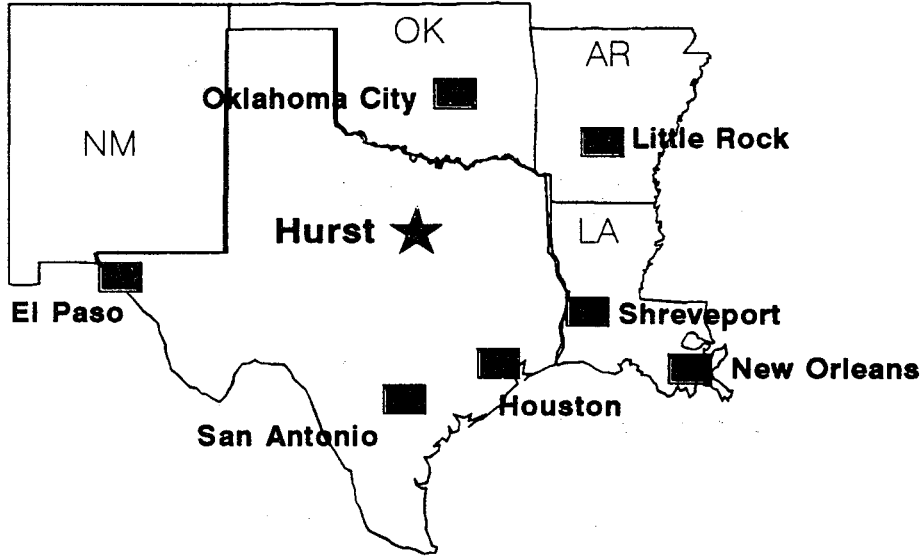
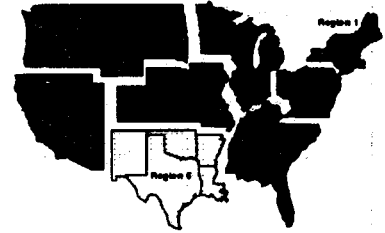
Prepared by the
Office of Management Systems

Federal Railroad Administration

REGION 5

Director: S. Stotts

(817) 334-3601



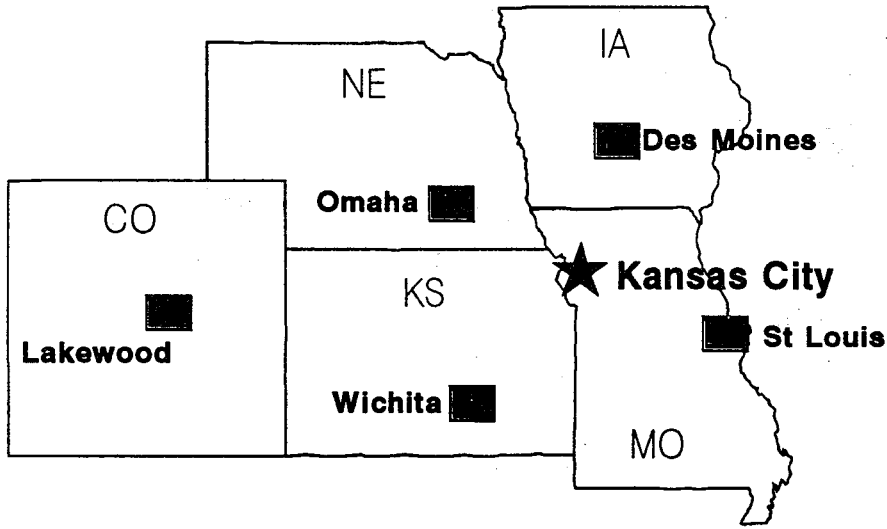
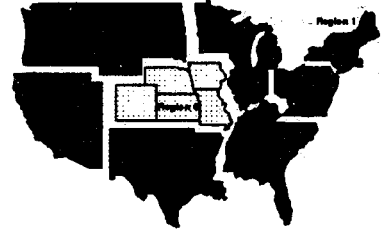
Prepared by the
Office Of Management Systems

Federal Railroad Administration

REGION 6

Director: D. Tisor

(816) 426-2497



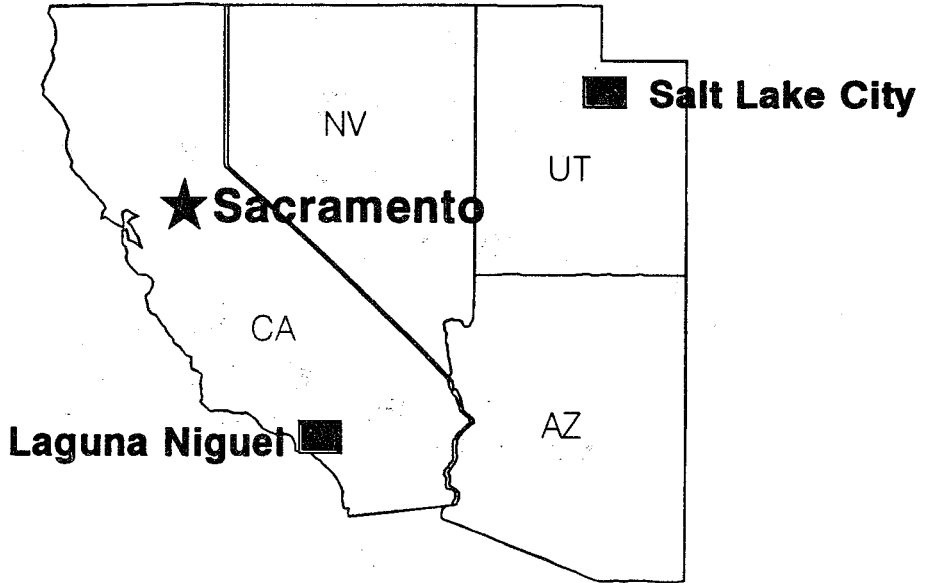
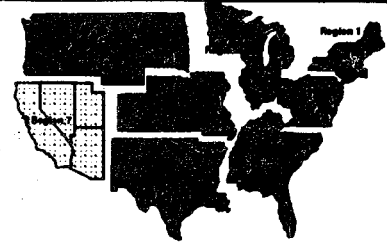
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Federal Railroad Administration

REGION 7

Director: H. Paton

(916) 551-1260



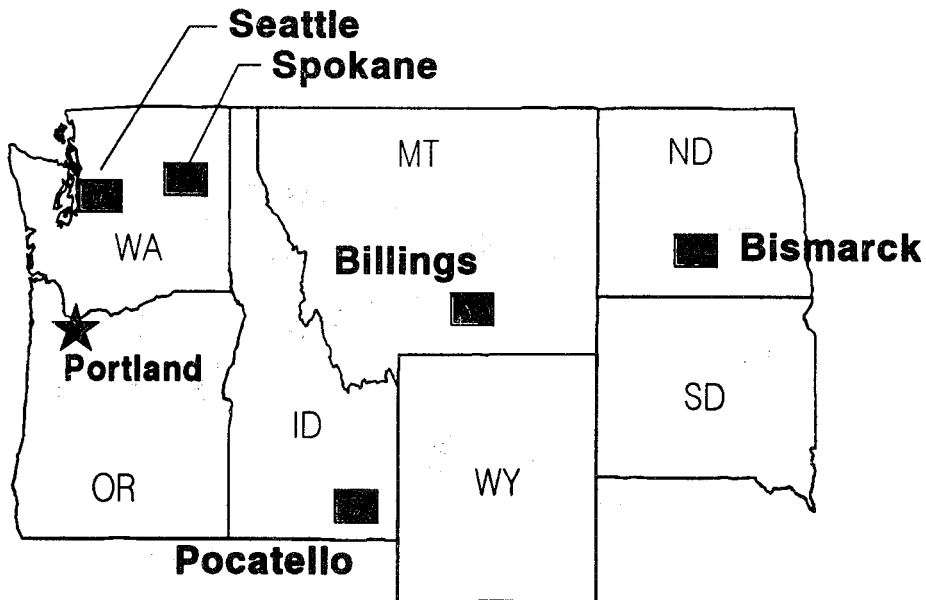
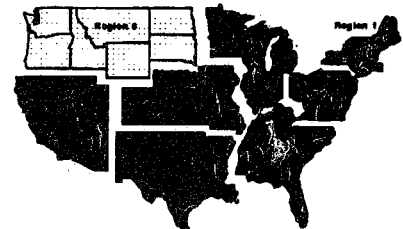
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Office of Management Systems

Federal Railroad Administration

REGION 8

Director: C. Southern

(503) 326-3011



Prepared by the
Office of Management Systems

Directory

Federal Railroad Administration
400 Seventh Street, SW
Washington, DC 20590
800-424-8802 (Haz Mat Accident/Incident)
202-366-0501 (Alcohol/Drug Related Accident/Incident)
800-424-0201 (Accident/Incident with Death or Injury)

Region 1 Regional Director
Federal Railroad Administration
55 Broadway
Room 1077
Cambridge, Massachusetts 02142
617-494-2321

Region 2 Regional Director
Federal Railroad Administration
841 Chestnut Street
Suite 712
Philadelphia, Pennsylvania 19107
215-597-0750

Region 3 Regional Director
Federal Railroad Administration
Suite 400 North Tower
1720 Peachtree Road, NW
Atlanta, Georgia 30309
404-347-2751

Region 4 Regional Director
Federal Railroad Administration
111 N. Canal Street
Suite 655
Chicago, Illinois 60606
312-353-6203

Region 5 Regional Director
Federal Railroad Administration
8701 Bedford Euless Road
Suite 425
Hurst, Texas 76053
817-334-3601

Region 6

Regional Director
Federal Railroad Administration
1806 Federal Building
911 Walnut Street
Kansas City, Missouri 64106-2095
816-426-2497

Region 7

Regional Director
Federal Railroad Administration
801 I Street, Room 342
Sacramento, California 95812-1139
916-551-1260

Region 8

Regional Director
Federal Railroad Administration
Crown Plaza Annex
1500 S.W. First Avenue
Suite 250
Portland, Oregon 97201
503-326-3011

Section 3:

Code of Federal Regulations

Part 209-Railroad Safety Enforcement Procedures

The Secretary of Transportation has delegated to the Federal Railroad Administrator the responsibility of enforcing Federal railroad safety laws. The major source of FRA's safety authority is the Federal Railroad Safety Act of 1970 (the Safety Act) which provides authority over all areas of railroad safety including the authority to issue necessary regulations and orders and take enforcement actions. Several other laws, enacted prior to the Safety Act, provide FRA authority over discrete areas of railroad safety. FRA also enforces regulations issued under the Hazardous Materials Transportation Act as they pertain to the shipment or transportation of hazardous materials by railroad.

Part 209 of the Code of Federal Regulations (CFR) describes procedures used to enforce these laws. Penalty schedules are included as appendices in each of the CFR parts setting forth safety requirements.

Civil penalties in amounts between \$250 and \$20,000, per day of violation, may be assessed for any violation of the railroad safety laws or regulations. FRA provides the opportunity for discussion of any penalty assessed, and most penalties are resolved through negotiation and payment of a settlement amount.

Part 211-Rules of Practice

This part defines rules of practice that apply to rulemaking and waiver proceedings, review of emergency orders, miscellaneous safety-related inquiries, and informal safety inquiries.

Any person may petition the Federal Railroad Administrator for issuance, amendment, repeal or permanent or temporary waiver of any rule or regulation. A petition for waiver must be submitted at least 3 months before the proposed effective date, unless good cause is shown for not doing so.

Except for applications for special approval, all petitions, applications, comments submitted in response to a notice, and other material pertaining to proceedings must be in triplicate to the following address:

Docket Clerk
Office of Chief Counsel
Federal Railroad Administration
Washington, DC 20590

Applications for special approval, and protests or comments and all other pertinent material related to these applications shall be submitted in triplicate to the following address:

Railroad Safety Board
Office of Safety
Federal Railroad Administration
Washington, DC 20590

Each petition for rulemaking or waiver must set forth the text or substance of the rule, regulation, standard or amendment proposed, or specify the rule, regulation or standard that the petitioner seeks to have repealed or waived; explain the interest of the petitioner, and the need for the action requested; and contain sufficient information to support the action sought including an evaluation of anticipated impacts of the action sought.

Part 210-Railroad Noise Emission Compliance Regulations

This part defines minimum compliance regulations for enforcement of the Railroad Noise Emission Standards established by the Environmental Protection Agency.

It applies to the total sound emitted by moving rail cars and locomotives, active retarders, switcher locomotives, car coupling operations, and load cell test stands, operated by a railroad. It does not apply to steam locomotives.

Part 212-State Safety Participation Regulations

This part establishes standards and procedures for State participation in investigative and surveillance activities under the Federal railroad safety laws and regulations.

To find out more about participating states involvement in railroad safety, a list of State program coordinators follows:

STATE PROGRAM COORDINATORS

Mr. Bernard Taylor
Director, Transportation Division
Alabama Public Service Commission
P.O. Box 991
Montgomery, Alabama 36101
(205) 261-5172 or 5980

Mr. Gary Smith
Chief of Safety
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007
(602) 542-3316

Mr. Jack Rich
Superintendent
Railroad Operations Safety Section
Rail Safety Branch, Safety Division
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, California 94102-3298
(415) 557-1934

Mr. Robert J. Seaman
Assistant Rail Officer
Bureau of Public Transportation
Connecticut Department of Transportation
P.O. Drawer A
Wethersfield, Connecticut 06109
(203) 667-7340

Mr. Gary E. Bechdol
Manager, Railroad Safety
Division of Public Transportation
Rail Office
Florida Department of Transportation
605 Suwannee Street, MS 25
Tallahassee, Florida 32399-0450
(904) 488-5704

Mr. Bernard L. Morris
Chief Railroad Engineer
Illinois Commerce Commission
527 E. Capitol Avenue
P.O. Box 19280
Springfield, Illinois 62794-9280
(217) 782-7660

Mr. Neil M. Volmer
Engineering Safety Manager
Rail and Water Division
Iowa Department of Transportation
800 Lincoln Way
Ames, Iowa 50010
(515) 239-1497

Mr. Vernon Wenger
Transportation Manager
Kansas Corporation Commission
1500 S.W. Arrowhead Road
Topeka, Kansas 66604-4027
(913) 271-3152

Mr. Allan H. Bartlett
Rail Planning Manager
Rail Transportation Division
State of Maine
Department of Transportation
State House Station 16
Augusta, Maine 04333
(207) 289-2841

Ms. Joyce K. Tapper
Administrator
Division of Labor and Industry
Maryland Department of Licensing and Regulation
501 St. Paul Place
Baltimore, Maryland 21202-2272
(301) 333-4192

Mr. Robert Swanson
Director, Railroad Administration
Section
Office of Railroads and Waterways
Minnesota Department of Transportation
Suite 925, Kelly Annex
Transportation Building
395 John Ireland Blvd.
St. Paul, Minnesota 55155
(612) 296-2472

Mr. Richard T. Mooney
Manager, Railroad Safety
Division of Transportation
Missouri Department of Economic
Development
301 West High Street, Room 230
P.O. Box 1216
Jefferson City, Missouri 65102
(314) 751-7122

Mr. Wayne Budt
Administrator
Transportation Division
Montana Public Service Commissioner
2701 Prospect Avenue
Helena, Montana 59620-2601
(406) 444-6195

Mr. Wayne F. Rowe
Director, Transportation
Nebraska Public Service Commission
300 The Atrium
1200 N Street
P.O. Box 94927
Lincoln, Nebraska 68509-4927
(402) 471-0227

Mr. Galen Denio
Manager, Engineering Division
Public Service Commission of Nevada
727 Fairview Drive
Carson City, Nevada 89710
(702) 687-6044

Mr. Walter W. King
Administrator, Bureau of Rail Safety
New Hampshire Department of Transportation
Stickney Avenue
P.O. Box 483
Concord, New Hampshire 03302-0483
(603) 271-2448

Mr. Ted Matthews
Bureau of Freight Services
New Jersey Department of Transportation
1035 Parkway Avenue, CN 600
Trenton, New Jersey 08625
(609) 530-8026

Mr. Robert W. Conklin
State Participation Program Coordinator
Commercial Transport Division
New York State Department of
Transportation
Building 7A, Room 305
Gov. Harriman State Office Campus
Albany, New York 12232
(518) 457-6360

Mr. George E. Young
Chief, Rail Safety Section
North Carolina Utilities Commission
403 North Salisbury Street
Dobbs Building - Room 2074
P.O. Box 29510
Raleigh, North Carolina 27626-0510
(919) 733-5486

Mr. Rand E. Patterson
Chief Inspector, Railroad Division
Transportation Department
Ohio Public Utilities Commission
180 East Broad Street
Columbus, Ohio 43266-0573
(614) 466-3191

Mr. William Mounger
Manager, Railroad Department
Oklahoma Corporation Commission
Jim Thorpe Office Building
2101 North Lincoln Boulevard
Oklahoma City, Oklahoma 73105
(405) 521-3407

Mr. Greg Malkasian
Administrator
Transportation Safety Division
Public Utility Commission of Oregon
Labor and Industries Building
Room 420
Salem, Oregon 93710-0335
(503) 378-6665

Mr. Kenneth E. Nicely
Director of Bureau of
Safety and Compliance
Pennsylvania Public Utility Commission
P.O. Box 3265
North Office Building, Room G-17
Harrisburg, Pennsylvania 17120
(717) 783-3846

Mr. A. R. Griffin
Director, Transportation Division
South Carolina Public Service
Commission
111 Doctors Circle
P.O. Drawer 11649
Columbia, South Carolina 29211
(803) 737-5193

Mr. Gordon C. Smith
Director
Transportation Division
Tennessee Public Service Commission
460 James Robertson Parkway
Nashville, Tennessee 37243-0505
(615) 741-2974

Mr. Mike Calhoun
Manager, Rail Safety/Planning
Transportation/Gas Utilities Division
Railroad Commission of Texas
1701 North Congress
P.O. Drawer 12967
Austin, Texas 78701
(512) 463-7118

Mr. David K. Miles, P.E.
Engineer for Traffic and Safety
Utah Department of Transportation
4501 South 2700 West
Salt Lake City, Utah 84119
(801) 965-4264

Mr. J. Langhorne Tompkins
Assistant Director
Division of Railroad Regulation
Virginia State Corporation Commission
P.O. Box 1197
Richmond, Virginia 23219
(804) 786-3681

Mr. Alan R. Scott
Operations Manager
State of Washington
Utilities and Transportation Commission
Chandler Plaza Building
1300 S. Evergreen Park Drive S.W.
Olympia, Washington 98504-8002
(206) 753-6410

Mr. Ira P. Baldwin
Manager - Railroad Safety Section
Transportation Division
Public Service Commission of West Virginia
201 Brooks Street
P.O. Box 812
Charleston, West Virginia 25323
(304) 340-0474

Part 213-Track Safety Standards

This part establishes initial minimum safety requirements for standard gage railroad track that is part of the general railroad system of transportation.

Any owner of track who knows or has been notified that the track does not comply with minimum safety requirements shall bring the track into compliance, halt operations over that track, or operate under authority of a qualified person designated to supervise renewal and inspection of track.

A track owner may assign responsibility for track to another person. Prior to start of operations, assignments of responsibility for track (if any) must be filed with the Federal Railroad Administrator.

Track must be inspected to detect deviations from the minimum standards and each owner must keep a record of the required inspection.

Part 215-Railroad Freight Car Safety Standards

This part establishes minimum Federal safety standards for railroad freight cars in service on standard gage track. This part does not apply to cars used exclusively in dedicated service or for properly stenciled maintenance-of-way equipment not used in revenue service.

Each railroad operating freight cars covered by these minimum safety standards must designate persons qualified to inspect railroad freight cars for compliance with these standards. Defective cars can be moved for repair after certain conditions are met. One of these conditions is that a tag or card bearing the words "bad order" or "home shop for repairs" must be securely attached to each side of the car. A record or copy of each tag or card attached to or removed from a car shall be retained for 90 days and shall be made available within 15 days for inspection by FRA or State inspectors.

Part 216-Special Notice and Emergency Order Procedures: Railroad Track, Locomotive and Equipment

This part applies to each railroad which uses or operates a railroad freight car or locomotive subject to minimum Federal safety standards and to each railroad owning track subject to minimum Federal safety standards.

An FRA or State inspector will give written notice that a freight car or locomotive is not in serviceable condition or that track is being lowered in class.

When the freight car or locomotive is restored to serviceable condition or the track is restored to a condition permitting speeds for a higher class, then the railroad shall provide written notice to the Regional Director specifying the repairs completed.

A railroad may appeal this notice for repair to the Regional Director for the region in which the notice was given. If the Regional Director denies the appeal, further appeal may be made to the Administrator.

When an FRA or State track inspector finds track conditions that require issuance of an Emergency Order removing the track from service, a Notice of Track Conditions will be issued to the railroad owning the track. If immediate repairs are begun on the track and the railroad advises the FRA Regional Track Engineer of such, then the track will be reinspected. If repairs have been completed the Notice of Track Conditions will be withdrawn. The Administrator may act on the Notice of Track Conditions by issuing an emergency order removing track from service. A railroad may petition FRA for review of the Emergency Order.

Part 217-Railroad Operating Rules

Through the requirements of this part, FRA learns the condition of operating rules and practices with respect to trains and other rolling equipment in the railroad industry, and each railroad is required to instruct its employees in operating practices. This part applies to railroads that operate trains or other rolling equipment on standard gage track which is part of the general railroad system of transportation.

Before beginning operations each railroad shall file with the FRA Administrator one copy of its code of operating rules, timetables, and timetable instructions. Amendments to operating rules, new timetables, and new timetable special instructions shall be filed with the Administrator within 30 days after their effective date.

Three copies of a program for periodic conduct of operational tests and inspections to determine the extent of compliance with its code of operating rules, timetables, and timetables special instructions must be filed with the Administrator by each railroad 30 days before beginning operations. Each amendment to a railroad's program for periodic conduct of operational test and inspections shall be filed with the Administrator within 30 days after it is issued. Each railroad shall keep a record of the date and place of each operations test and inspection performed.

Each railroad shall periodically instruct each railroad employee whose activities are governed by the railroad's operating rules on the meaning and application of the railroad's operating rules. Three copies of the program of instruction must be filed with the Administrator 30 days before the start of operations. One copy of amendments to the instruction program must be filed with the Administrator within 30 days after it is issued.

Except for a railroad with fewer than 400,000 total manhours, each railroad annually by March 1, shall file with the Administrator a written report on the previous year's number of train miles; and results of the operational test and inspection program specifically including the results of alcohol and drug observations and tests.

Part 218-Railroad Operating Practices

This part establishes minimum requirements for railroad operating rules and practices. The rules in this part provide protection for railroad employees. Each railroad may establish additional or more stringent requirements in its operating rules, timetables, timetable special instructions, and other special instructions.

This part applies to railroads that operate rolling equipment on standard gage track which is part of the general railroad system. The operating rules defined in this part, and any additional or more stringent requirements issued by a railroad in relation to the operating rules in this part are subject to the filing and testing requirements of Part 217.

Part 219-Control of Alcohol and Drug Use

The purpose of this part is to prevent accidents and casualties in railroad operations that result from impairment of employees by alcohol or drugs. This part establishes minimum Federal safety standards for control of alcohol and drug use. This part does not restrict a railroad from adopting and enforcing additional or more stringent requirements not inconsistent with this part.

This part applies to railroads that operate rolling equipment on standard gage track which is part of the general railroad system of transportation and to commuter or other short-haul rail passenger railroads. Subparts A-General, B-Prohibitions, C-Post-Accident Toxicological Testing, and H-Procedures and Safeguards for Urine Drug Testing apply to all railroads meeting the above requirements. Subparts D-Authorization to Test for Cause, E-Identification of Troubled Employees, F-Pre-Employment Drug Screens, and G-Random Drug Testing Program do not apply to a railroad that employs not more than 15 employees covered by the Hours of Service Act and that does not operate on tracks of another railroad (or otherwise engage in joint operations with another railroad) except as necessary for purposes of interchange.

Under this part, whenever an employee is required to take a breath or body fluid test, the railroad must give clear, decisive written notice that the test is required by FRA regulations and give the basis for the test, such as reasonable cause.

When circumstances involving a major train accident; an impact accident; fatal train accident; or a passenger train accident

require testing under Subpart C-Post-Accident Toxicological Testing, the railroad(s) must take steps to assure that all covered railroad employees involved in the accident or incident provide blood and urine samples for toxicological testing by FRA. Basic information concerning the accident/incident and any treatment administered after the accident/incident is needed to process samples, analyze lab findings, and notify the railroads and employees of findings. The railroad representative must furnish information on Form FRA F 6180.73. The toxicologically tested railroad employee must complete Form FRA F 6180.74.

Under Subpart C, a railroad is required to telephone FRA promptly at 202-366-0501 and report events which triggered post-accident toxicological testing.

Positive test results are reported to the railroad's Medical Review Officer (MRO). The MRO reviews the tests and reports findings in writing to the Associate Administrator of Safety, FRA, Washington, DC 20590.

Before the final accident/incident investigation report is prepared and within 45 days of receipt of post-accident toxicological test results, an employee may respond in writing concerning the results. The written response is to be addressed to the Alcohol/Drug Program Manager, Office of Safety, FRA, 400 Seventh Street, SW, Washington, DC 20590.

Within 60 days of the date of the post-accident toxicological report an employee may make a written request for a retest to the Associate Administrator for Safety.

Tests for reasonable cause under Subpart-D are to be conducted by a trained and qualified operator. Before conducting the FRA authorized reasonable cause breath tests, one copy of the operator's training program must be filed with FRA in accordance with the requirements of Part 217.

To identify troubled employees, Subpart-E requires a railroad, before starting operations, to adopt, publish, and implement a voluntary referral policy and a co-worker report policy. These published policies must be available for inspection by FRA. A railroad may adopt, publish, and implement an alternate policy with respect to a particular craft or class, as long as there is written concurrence by the recognized employee representative. For the alternate plans, a railroad shall file with FRA copies of the agreement with the recognized employee representative. A notice of any amendments or revocations to the alternate plan must be filed with FRA 30 days before the effective date of the change.

Under Subpart-F, railroads are to medically review lab results of pre-employment drug screens taken by applicants and they must notify applicants of test results.

As required by Subpart-G, one copy of a railroad's random drug testing program must be filed for review and approval with FRA's Associate Administrator for Safety. A new railroad must file at least 30 days before starting operations. Any amendment to the program must be filed with FRA 30 days before its effective date.

All records for tests reported positive by the MRO are to be retained by the railroad for 2 years. Records for tests reported negative are to be retained for 1 year. Included in these records are drug testing custody and control forms, laboratory reports, and certification statements.

Summary records of employee alcohol and drug test results and rehabilitation of covered employees are to be maintained for at least 5 years.

Records required to be kept are to be available to FRA for inspection.

Forms FRA F 6180.73 and FRA F 6180.74 are enclosed in FRA Post-Accident Toxicology Test Kits. Kits can be obtained for a fee from CompuChem Laboratories, P.O. Box 12652, Research Triangle Park, North Carolina 27709, Telephone (919) 248-6888.

Part 220-Radio Standards and Procedures

This part establishes minimum requirements governing the use of radio communication in connection with railroad operations. The term "radio communications" refers to the transmission and reception of voice communications by radio.

This part applies to railroads that operate trains or other rolling equipment on standard gage track which is part of the general railroad system of transportation.

Each railroad, 30 days before using radio in railroad operations, shall file one copy of its radio communication operating rules. Each amendment to the rules shall be filed with FRA within 30 days of its issue. Radio information must be published in a timetable or special instruction.

Part 221-Rear End Marking Device-Passenger, Commuter and Freight Trains

This part establishes minimum requirements governing highly visible marking devices for the trailing end of the rear car of all passenger, commuter and freight trains. So long as these minimum requirements are met, railroads may adopt additional or more stringent requirements for rear end marking devices.

This part applies to passenger, commuter and freight trains when operated on a standard gage main track which is part of the general railroad system of transportation. This part does not apply to a railroad that operates only trains consisting of historical or antiquated equipment for excursion, educational, or recreational purposes, or to a railroad operating only one train at any given time.

Part 223-Safety Glazing Standards-Locomotives, Passenger Cars and Cabooses

This part provides minimum requirements for glazing materials in order to protect railroad employees and railroad passengers from injury as result of objects striking the windows of locomotives, cabooses and passenger cars.

This part applies to railroads that operate rolling equipment on standard gage track that is a part of the general railroad system of transportation. This part does not apply to locomotives, passenger cars and cabooses that are historical or antiquated equipment and are used only for excursion, educational, recreational purposes or private transportation purposes, or to locomotives that are used exclusively in designated service.

Part 225-Railroad Accidents/Incidents: Reports Classification, and Investigations

The purpose of this part is to provide FRA with information concerning hazardous conditions on the Nations's railroads. FRA needs this information to carry out effectively its regulatory responsibilities under the Federal Railroad Safety Act of 1970 and the Accident Reports Act.

This part applies to all railroads except those railroads whose entire operations are confined within an industrial installation.

Each railroad must report immediately by telephone to 800-424-0201 the occurrence of an accident/incident that results in the death of a rail passenger or employee, or the death or injury of five or more persons.

Certain highway-rail grade crossing; rail equipment; and death, injury and occupational illness related accident/incidents must be reported to FRA. Reports must be on the appropriate FRA forms and be completed as required by the current FRA Guide for Preparing Accident/Incident Reports. The following forms are used:

- Form FRA F 6180.54-Rail Equipment Accident/Incident Report is used to report each reportable rail equipment accident/incident which occurred during the preceding month.
- Form FRA F 6180.55-Railroad Injury and Illness Summary must be filed each month, even though no reportable accident/incident occurred during the month covered.
- Form FRA F 6180.55a-Railroad Injury and Illness (Continuation Sheet) is used to report all reportable fatalities, injuries and occupational illnesses that occurred during the preceding month.
- Form FRA F 6180.56-Annual Railroad Report of Manhours by State is submitted as part of the monthly Railroad Injury and Illness Summary for the month of December of each year.
- Form FRA F 6180.57-Rail-Highway Grade Crossing Accident/Incident Report is used to report each rail-highway grade crossing accident/incident which occurred during the preceding month.
- Form FRA F 6180.45-Annual Summary Report of Railroad Injury and Illness is submitted as part of the monthly

Railroad Injury and Illness Summary for the month of December of each year.

- Form FRA F 6180.81-Employee Human Factor Attachment is used by railroads, as a supplement to the Rail Equipment Accident/Incident Report in reporting rail equipment accidents/incidents that they attribute to an employee human factor. The form shall be attached to the Rail Equipment Accident/Incident Report and submitted within 30 days after expiration of the month in which the accident/incident occurred.

- Form FRA F 6180.78-Notice to Railroad Employee Involved in Rail Equipment Accident/Incident Attributed to Employee Human Factor; Employee Statement Supplementing Railroad Accident Report. When a railroad alleges that the act, omission, or physical condition of a specific employee was a primary or contributing cause of the rail equipment accident/incident, the railroad shall complete part I of Form FRA F 6180.78 to notify the employee of the allegations and that the employee has the right to submit a statement to FRA. The employee may make a statement on part II of Form FRA F 6180.78 and submit the original to FRA and a copy to the railroad.

Sample forms FRA F 6180-45, F 6180-54, F 6180-55, F 6180-55a, F 6180-56, F 6180-57, F 6180.78, and F 6180.81 are enclosed in the forms section.

Part 228-Hours of Service of Railroad Employees

This part establishes reporting and record keeping requirements with respect to the hours of service of railroad employees engaged in or connected with the movement of any train, including a hostler; and establishes standards and procedures concerning the construction or reconstruction of employee sleeping quarters.

Each carrier shall keep a record of hours of duty of each employee and the records must be available for inspection and copying by FRA. Each carrier shall report to FRA certain instances of excess service within 30 days after the calendar month in which the instance occurs.

Excess service reports are to be made on Form FRA F-6180-3. An example of this form is enclosed in the forms section.

FRA approval must be obtained before beginning construction or reconstruction of sleeping quarters that are to be less than one-half mile from any area where switching or humping operations are performed. A petition for such approval should be filed in triplicate at the following address:

Secretary, Railroad Safety Board
Federal Railroad Administration
Washington, DC 20590

The petition must contain a brief description of the planned construction; the number of employees expected to use the quarters at full capacity; a brief description of the site; a blueprint or drawing showing the relationship of the site to trackage and other planned and existing facilities; a proposed date when construction will begin; a description of the average number and variety of rail operations in the areas within one-half mile of the site; an estimate of the average daily number of placarded rail cars transporting hazardous materials through the railroad facility; a statement certified by a corporate officer of the carrier explaining any plans to use existing and new trackage; any additional information necessary for evaluation of the site. The petition must contain a statement that the petition has been served on the recognized railroad employee representative.

A certified supplementary statement is required for construction within one-third mile of switching or humping operations that are performed using cars placarded "Explosives A" or "Poison Gas" or any DOT Specification 112A and 114A tank cars transporting flammable gas subject to FRA Emergency Order No. 5. The supplementary statement must certify that no feasible alternate site located at or beyond one-third mile from switching or humping operations is available, that natural or other barriers

exist or will be created before the sleeping quarters are occupied, that the land is sloped so that any unintentional releases of hazardous materials will flow away from the site, and that precautions have been taken to ensure employee safety from toxic gases or explosions.

An appendix to Part 228 provides FRA's interpretations of the Hours of Service Act as applied to most common situations.

Part 229-Railroad Locomotive Safety Standards

This part establishes minimum Federal safety standards for all locomotives except steam locomotives.

Locomotive accidents caused by a locomotive or any part of a locomotive that resulted in serious injury or death must be reported immediately by toll free telephone at 800-424-0201. Written confirmation of the oral report must be made immediately to FRA.

Locomotives must be inspected and tested at various intervals. Reports on the inspections and test must be made on Form FRA F 6180-49A which is enclosed in the forms section.

Part 230-Locomotive Inspection

This part establishes minimum Federal safety standards for steam powered locomotives.

Locomotive boilers and boiler parts and steam locomotive and tenders must be inspected and tested at various intervals. Monthly and annual reports on inspections must be filed with the Regional Director of Safety. Copies of the inspection reports shall be placed under glass in a conspicuous place in the locomotive.

A copy of this part follows and sample forms are in the forms section.

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Exemptions. A railroad which employs not more than 15 persons covered by the Hours of Service Act (including signalmen and hostlers) may be exempted from the law's requirements by the FRA after hearing and for good cause shown. The exemption must be supported by a finding that it is in the public interest and will not adversely affect safety. The exemption need not relate to all carrier employees. In no event may any employee of an exempt railroad be required or permitted to work beyond 16 hours continuously or in the aggregate within any 24-hour period. Any exemption is subject to review at least annually.

142 FR 27596, May 31, 1977, as amended at 43 FR 30804, July 18, 1978)

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- 230.300 Safe working pressure; factor of safety.
230.301 Stresses, staybolts, braces.

§ 230.0 Definition of locomotive.
A locomotive is a self-propelled unit of equipment designed for moving other equipment and includes a self-propelled unit designed to carry freight and/or passenger traffic.

Subpart A—Boilers and Appurtenances

§ 230.1 Responsibility for the general construction and safe working pressure.
The railroad company will be held responsible for the general design and construction of the locomotive boilers under its control. The safe working pressure for each locomotive boiler shall be fixed by the chief mechanical officer of the company or by a competent mechanical engineer under his supervision, after full consideration has been given to the general design, workmanship, age, and condition of the boiler, and shall be determined from the minimum thickness of the shell plates, the lowest tensile strength of the plates, the efficiency of the longitudinal joint, the inside diameter of the course, and the lowest factor of safety allowed.

FACTOR OF SAFETY

§ 230.2 Lowest factor.
The lowest factor of safety for locomotive boilers shall be 4.

§ 230.3 Maximum allowable stress on stays and braces.

(a) For locomotives constructed after January 1, 1915, the maximum allowable stress per square inch of net cross sectional area on fire box and combustion chamber stays shall be 7,500 pounds. The maximum allowable stress per square inch of net cross sectional area on round, rectangular, or gusset braces shall be 9,000 pounds.

(b) For locomotives constructed prior to January 1, 1915, the maximum allowable stress on stays and braces shall meet the requirements of § 230.2 except that when a new fire box and wrapper sheet are applied to such locomotives they shall be made to meet the requirements of this section.

- Sec.
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230.415 Spring rigging.
230.416 Lateral motion between wheels and boxes.
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230.420 Specifications for wheels.
230.421 Wrought-steel or steel-tired wheels.
230.422 Cast iron or cast steel wheels.
230.423 Windows and operating compartments.
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230.426 Classification and marker lights.
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230.429 Location of headlights and whistle.
230.430 Sanding apparatus.
230.431 Testing of train signal system.
230.432 Current collectors.
230.433 Pantographs.
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230.439 Guarding of current-carrying parts.
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230.447 Insulation dielectric test.
230.448 Insulation and electrical connection inspection.
230.451 Filing of inspection reports.
230.452 Retirement or change of unit numbers.
230.453 Extension of time for inspections and tests.
230.454 Reporting of accidents.
230.455 Changes in construction.
230.456 Safety appliances.
230.457 Body structure.
230.458 Report forms.
- Authority: Secs. 2, 5, 38 Stat. 913, 914; 45 U.S.C. 23, 28, sec. 6(e) and (f), 80 Stat. 939, 940; 49 U.S.C. 1655.
Source: 33 FR 19621, Dec. 25, 1968, unless otherwise noted.

§ 230.4

STRENGTH OF MATERIAL

§ 230.4 Tensile strength of shell plates.

When the tensile strength of steel or wrought-iron shell plates is not known, it shall be taken at 50,000 pounds for steel and 45,000 pounds for wrought iron.

§ 230.5 Maximum shearing strength of rivets.

The maximum shearing strength of rivets per square inch of cross sectional area shall be taken as follows:

Iron rivets in single shear.....	Pounds	38,000
Iron rivets in double shear.....		76,000
Steel rivets in single shear.....		44,000
Steel rivets in double shear.....		88,000

§ 230.6 Higher shearing strength of rivets.

A higher shearing strength may be used for rivets when it can be shown by test that the rivet material used is of such quality as to justify a higher allowable shearing strength.

INSPECTION

§ 230.7 Responsibility for inspection and repair.

The mechanical officer in charge at each point where boiler work is done will be held responsible for the inspection and repair of all locomotive boilers and their appurtenances under his jurisdiction. He must know that all defects disclosed by any inspection are properly repaired before the locomotive is returned to service.

§ 230.8 Term "inspector."

The term "inspector" as used in the rules and instructions in this subpart, unless otherwise specified, will be held to mean the railroad company's inspector.

INSPECTION OF INTERIOR OF BOILER

§ 230.9 Time of inspection.

The interior of every boiler shall be thoroughly inspected before the boiler is put into service and whenever a sufficient number of flues are removed to allow examination.

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§ 230.10 Flues to be removed.

All flues of locomotive boilers in service, except as otherwise provided, shall be removed at least once every 4 years for the purpose of making a thorough examination of the entire interior of the boiler and its bracing. After the flues are taken out, the inside of the boiler must have the scale removed and be thoroughly cleaned and inspected. The removal of flues will be due after 48 calendar months' service, provided such service is performed within 5 consecutive years. Portions of calendar months out of service will not be counted. Time of service must be properly accounted for by out of service reports and notations of months claimed out of service made on the back of each subsequent inspection report and cab card. The period for removal of flues, upon formal application to the Director, Bureau of Railroad Safety may be extended, if investigation shows that conditions warrant it. The application should include a check or money order in the amount of \$25.00 payable to the Federal Railroad Administration.

(33 FR 19621, Dec. 26, 1968, as amended at 34 FR 11973, July 16, 1969)

§ 230.11 Method of inspection.

The entire interior of the boiler must then be examined for cracks, pitting, grooving, or indications of overheating and for damage where mud has collected, or heavy scale formed. The edges of plates, all laps, seams, and points where cracks and defects are likely to develop or which an exterior examination may have indicated, must be given an especially minute examination. It must be seen that braces and stays are taut, that pins are properly secured in place, and that each is in condition to support its proportion of the load.

§ 230.12 Repairs.

Any boiler developing cracks in the barrel shall be taken out of service at once, thoroughly repaired, and reported to be in satisfactory condition before it is returned to service.

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§ 230.13 Lap-joint seams.

Every boiler having lap-joint longitudinal seams without reinforcing plates shall be examined with special care to detect grooving or cracks at the edges of the seams.

§ 230.14 Fusible plugs.

If boilers are equipped with fusible plugs they shall be removed and cleaned of scale at least once every month. Their removal must be noted on the report of inspection.

INSPECTION OF EXTERIOR OF BOILER

§ 230.15 Time of inspection.

The exterior of every boiler shall be thoroughly inspected before the boiler is put into service and whenever the jacket and the lagging are removed.

§ 230.16 Lagging to be removed.

The jacket and lagging shall be removed at least once every 5 years and a thorough inspection made of the entire exterior of the boiler while under hydrostatic pressure. The jacket and lagging shall also be removed whenever on account of indications of leaks the United States Inspector or the railroad company's inspector considers it desirable or necessary.

TESTING BOILERS

§ 230.17 Time of testing.

Every boiler, before being put into service and at least once every 12 months thereafter, shall be subjected to hydrostatic pressure 25 percent above the working steam pressure.

§ 230.18 Removal of dome cap.

The dome cap and throttle standpipe must be removed at the time of making the hydrostatic test and the interior surface and connections of the boiler examined as thoroughly as conditions will permit. In case the boiler can be entered and thoroughly inspected without removing the throttle standpipe the inspector may make the inspection by removing the dome cap only, but the variation from the rule must be noted in the report of inspection.

§ 230.23

§ 230.19 Witness of test.

When the test is being made by the railroad company's inspector, an authorized representative of the company, thoroughly familiar with boiler construction, must personally witness the test and thoroughly examine the boiler while under hydrostatic pressure.

§ 230.20 Repairs and steam test.

When all necessary repairs have been completed, the boiler shall be fired up and the steam pressure raised to not less than the allowed working pressure, and the boiler and appurtenances carefully examined. All cocks, valves, seams, bolts, and rivets must be tight under this pressure and all defects disclosed must be repaired.

STAYBOLT TESTING

§ 230.21 Time of testing rigid bolts.

All staybolts shall be tested at least once each month. Staybolts shall also be tested immediately after every hydrostatic test.

§ 230.22 Method of testing rigid bolts.

The inspector must tap each bolt and determine the broken bolts from the sound or the vibration of the sheet. If staybolt tests are made when the boiler is filled with water, there must be not less than 50 pounds pressure on the boiler. Should the boiler not be under pressure, the test may be made after draining all water from the boiler, in which case the vibration of the sheet will indicate any unsoundness. The latter test is preferable.

§ 230.23 Method of testing flexible staybolts with caps.

(a) Except as provided in paragraph (b) of this section, all staybolts having caps over the outer ends shall have the caps removed at least once every 2 years and the bolts and sleeves examined for breakage. Each time the hydrostatic test is applied the hammer test required by §§ 230.21 and 230.22 shall be made while the boiler is under hydrostatic pressure not less than the allowed working pressure.

(b) When flexible staybolts are provided with a telltale hole not less than

§ 230.24

three-sixteenths inch nor more than seven thirty-seconds inch in diameter, extending the entire length of the bolt and into the head not less than one-third of its diameter, and are opened and tested each time the hydrostatic test is applied, with an electrical or other instrument approved by the Bureau of Railroad Safety, that will positively indicate when the telltale holes are open their entire length, the caps will not be required to be removed. When this test is completed, the hydrostatic test must be applied and all staybolts removed which show leakage through the telltale hole.

The inner ends of the telltale holes must be kept closed with a fireproof porous material that will exclude foreign matter and permit leakage of steam or water, if the bolt is broken or fractured, into the telltale hole. When this test is completed the ends of the telltale holes shall be closed with material of different color than that removed and a record kept of colors used.

(c) The removal of flexible staybolt caps and other tests shall be reported on the report of inspection Form No. 3, and a proper record kept in the office of the railroad company of the inspections and tests made.

(d) Fire-box sheets must be carefully examined at least once every month for mud burn, bulging, and indication of broken staybolts.

(e) Staybolt caps shall be removed or any of the above tests made whenever the United States Inspector or the railroad company's inspector considers it desirable in order to thoroughly determine the condition of staybolts or staybolt sleeves.

§ 230.24 Method of testing flexible staybolts without caps.

Flexible staybolts which do not have caps shall be tested once each month, the same as rigid bolts.

Each time a hydrostatic test is applied such staybolt test shall be made while the boiler is under hydrostatic pressure not less than the allowed working pressure and proper notation of such test made on Form No. 3.

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§ 230.25 Broken staybolts.

No boiler shall be allowed to remain in service when there are two adjacent staybolts bolts broken or plugged in any part of the fire box or combustion chamber, nor when three or more are broken or plugged in a circle 4 feet in diameter, nor when five or more are broken or plugged in the entire boiler.

§ 230.26 Telltale holes.

All staybolts shorter than 8 inches applied after July 1, 1911, except flexible bolts, shall have telltale holes three-sixteenths inch in diameter and not less than 1¼ inches deep in the outer end. These holes must be kept open at all times.

§ 230.27 Drilling.

All staybolts shorter than 8 inches, except flexible bolts and rigid bolts which are behind frames and braces, shall be drilled when the locomotive is in the shop for heavy repairs, and this work must be completed prior to July 1, 1914.

STEAM GAUGES

§ 230.28 Location of gauges.

Every boiler shall have at least one steam gauge which will correctly indicate the working pressure. Care must be taken to locate the gauge so that it will be kept reasonably cool and can be conveniently read by the engineers.

§ 230.29 Siphon.

Every gauge shall have a siphon of ample capacity to prevent steam entering the gauge. The pipe connection shall enter the boiler direct and shall be maintained steamtight between boiler and gauge. The siphon pipe and its connections to the boiler must be cleaned each time the gauge is tested.

§ 230.30 Time of testing.

Steam gauges shall be tested at least once every 3 months and also when any irregularity is reported.

§ 230.31 Method of testing.

Steam gauges shall be compared with an accurate test gauge or dead-

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weight tester and gauges found inaccurate shall be corrected before being put into service.

§ 230.32 Badge plates.

A metal badge plate showing the allowed steam pressure shall be attached to the boiler head in the cab. If boiler head is lagged, the lagging and jacket shall be cut away so that the plate can be seen.

§ 230.33 Boiler number.

The builder's number of the boiler, if known, shall be stamped on the dome. If the builder's number of the boiler cannot be obtained, an assigned number which shall be used in making out specification cards shall be stamped on dome.

SAFETY VALVES

§ 230.34 Number and capacity.

Every boiler shall be equipped with at least two safety valves, the capacity of which shall be sufficient to prevent, under any conditions of service, an accumulation of pressure more than 5 percent above the allowed steam pressure.

§ 230.35 Setting of safety valves.

Safety valves shall be set to pop at pressures not exceeding 6 pounds above the working steam pressure. When setting safety valves, two steam gauges shall be used, one of which must be so located that it will be in full view of the persons engaged in setting such valves; and if the pressure indicated by the gauges varies more than 3 pounds they shall be removed from the boiler, tested, and corrected before the safety valves are set. Gauges shall in all cases be tested immediately before the safety valves are set or any change made in the setting. When setting safety valves the water level in the boiler shall not be above the highest gauge cock.

§ 230.36 Time of testing.

Safety valves shall be tested under steam at least once every 3 months, and also when any irregularity is reported.

§ 230.43

WATER GLASS AND GAUGE COCKS

§ 230.37 Number and location.

Every boiler shall be equipped with at least one water glass and three gauge cocks. The lowest gauge cock and the lowest reading of the water glass shall be not less than 3 inches above the highest part of the crown sheet. Locomotives which are not now equipped with water glasses shall have them applied on or before July 1, 1912.

§ 230.38 Water glass valves.

All water glasses shall be supplied with two valves or shutoff cocks, one at the upper and one at the lower connection to the boiler, and also drain cock, so constructed and located that they can be easily opened and closed by hand.

§ 230.39 Time of cleaning.

The spindles of all gauge cocks and water glass cocks shall be removed and cocks thoroughly cleaned of scale and sediment at least once each month.

§ 230.40 Tests required before each trip.

All water glasses must be blown out and gauge cocks tested before each trip and gauge cocks must be maintained in such condition that they can be easily opened and closed by hand without the aid of a wrench or other tool.

§ 230.41 Water and lubricator glass shields.

All tubular water glasses and lubricator glasses must be equipped with a safe and suitable shield which will prevent the glass from flying in case of breakage, and such shield shall be properly maintained.

§ 230.42 Water glass lamps.

All water glasses must be supplied with a suitable lamp properly located to enable the engineer to easily see the water in the glass.

INJECTORS AND FLUE PLUGS

§ 230.43 Injectors.

Injectors must be kept in good condition, free from scale, and must be tested before each trip. Boiler checks,

§ 230.44

delivery pipes, feed water pipes, tank hose and tank valves must be kept in good condition, free from leaks and from foreign substances that would obstruct the flow of water.

§ 230.44 Flue plugs.

Flue plugs must be provided with a hole through the center not less than three-fourths inch in diameter. When one or more tubes are plugged at both ends the plugs must be tied together by means of a rod not less than five-eighths inch in diameter. Flue plugs must be removed and flues repaired at the first point where such repairs can properly be made.

WASHING BOILERS

§ 230.45 Time of washing.

All boilers shall be thoroughly washed as often as the water conditions require, but not less frequently than once each month. All boilers shall be considered as having been in continuous service between washouts unless the dates of the days that the boiler was out of service are properly certified on washout reports and the report of inspection.

§ 230.46 Plugs to be removed.

When boilers are washed, all washout, arch, and water bar plugs must be removed.

§ 230.47 Water tubes.

Special attention must be given the arch and water bar tubes to see that they are free from scale and sediment.

§ 230.48 Office record.

An accurate record of all locomotive boiler washouts shall be kept in the office of the railroad company. The following information must be entered on the day that the boiler is washed:

- (a) Number of locomotive.
- (b) Date of washout.
- (c) Signature of boiler washer or inspector.
- (d) Statement that spindles of gauge cocks and water-glass cocks were removed and cocks cleaned.
- (e) Signature of the boiler inspector or the employee who removed the spindles and cleaned the cocks.

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STEAM LEAKS

§ 230.49 Leaks under lagging.

If a serious leak develops under the lagging, an examination must be made and the leak located. If the leak is found to be due to a crack in the shell or to any other defect which may reduce safety, the boiler must be taken out of service at once, thoroughly repaired, and reported to be in satisfactory condition before it is returned to service.

§ 230.50 Leaks in front of enginemen.

All steam valves, cocks, and joints, studs, bolts, and seams shall be kept in such repair that they will not emit steam in front of the enginemen, so as to obscure their vision.

FILING REPORTS

§ 230.51 Report of inspection.

Not less than once each month and within 10 days after each inspection a report of inspection, Form No. 1, size 6 by 9 inches, shall be filed with the district inspector of locomotive boilers for each locomotive used by a railroad company, and a copy shall be filed in the office of the chief mechanical officer having charge of the locomotive.

MONTHLY LOCOMOTIVE INSPECTION AND REPAIR REPORT

Form No. 1.

Locomotive: Number _____, 19____, at _____, _____ Company.

Initial _____

In accordance with the act of Congress approved February 17, 1911, as amended March 4, 1915, and the rules and instructions issued in pursuance thereof and approved by the Federal Railroad Administration, all parts of locomotive No. _____, including the boiler and appurtenances, were inspected on _____, 19____, at _____, and all defects disclosed by said inspection have been repaired, except as noted on the back of this report.

- 1. Steam gauges tested and left in good condition on _____, 19____.
- 2. Safety valves set to pop at _____ pounds, _____ pounds, _____ pounds on _____, 19____.

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general condition of the boiler and repairs made shall be submitted on Form No. 3, size 6 by 9 inches, and filed with the United States Inspector, and a copy shall be filed in the office of the chief mechanical officer having charge of the locomotive. The monthly report will not be required for the month in which this report is filed.

Form No. 3

ANNUAL LOCOMOTIVE INSPECTION AND REPAIR REPORT

Locomotive: Initial _____, Number _____, _____ Company.

- 3. Were both injectors tested and left in good condition? _____
- 4. Were steam leaks repaired? _____
- 5. Condition of brake and signal equipment, _____
- 6. Condition of draft gear and draw gear, _____
- 7. Condition of driving gear, _____
- 8. Condition of running gear, _____
- 9. Condition of tender, _____
- I certify that the above report is correct, _____ Inspector.
- 10. Was boiler washed and gauge cocks and water glass cock spindle removed and cocks cleaned? _____
- 11. Were steam leaks repaired? _____
- 12. Condition of staybolts and crown stays, _____
- 13. Number of staybolts and crown stays renewed, _____
- 14. Condition of flues and firebox sheets, _____
- 15. Condition of arch and water bar tubes, if used, _____
- 16. Were fusible plugs removed and cleaned? _____
- 17. Date of previous hydrostatic test, _____, 19____.
- 18. Date of removal of caps from flexible staybolts, _____, 19____.
- I certify that the above report is correct, _____ Inspector.

State of _____ County of _____, _____, ss: _____ Inspectors of the _____ Company.

The above work has been performed and the report is approved. _____ Notary Public. _____ Officer in Charge.

§ 230.52 Posting of copy.

A copy of the monthly inspection report, Form No. 1, § 230.51, or annual inspection report, Form No. 3, properly filled out, shall be placed under glass in a conspicuous place in the cab of the locomotive before the boiler inspected is put into service.

§ 230.53 Reports of tests.

Not less than once each year and within 10 days after hydrostatic and other required tests have been completed a report of such tests showing _____ Form No. 3 should be printed on yellow paper.

In accordance with the act of Congress approved February 17, 1911, as amended March 4, 1915, and the rules and instructions issued in pursuance thereof and approved by the Federal Railroad Administration, all parts of locomotive No. _____, including the boiler and its appurtenances, were inspected on _____, 19____, at _____, and all defects disclosed by said inspection have been repaired, except as noted on the back of this report.

- 1. Date of previous hydrostatic test, _____, 19____.
- 2. Date of previous removal of caps from flexible staybolts _____, 19____.
- 3. Date of previous removal of flues, _____, 19____.
- 4. Date of previous removal of all lagging, _____, 19____.
- 5. Hydrostatic test pressure of _____ pounds was applied.
- 6. Were caps removed from all flexible staybolts? _____
- 7. Were all flues removed? _____
- 8. Condition of interior of barrel, _____
- 9. Was all lagging removed? _____
- 10. Condition of exterior of barrel, _____
- 11. Was boiler entered and inspected? _____
- 12. Was boiler washed? Water glass cocks and gauge cocks cleaned? _____
- 13. Condition of crown stays and staybolts, _____
- 14. Condition of sling stays and crown bars, _____
- 15. Condition of firebox sheets and flues, _____
- 16. Condition of arch tubes, _____
- 17. Condition of water bar tubes, _____
- 18. Condition of back head braces, _____
- 19. Condition of front flue sheet braces, _____

- 20. Were fusible plugs removed and cleaned? _____
 - 21. Were steam leaks repaired? _____
- I certify that the above report is correct.
_____, Inspector.
- 22. Were steam gauges tested and left in good condition? _____
 - 23. Safety valves set to pop at _____ pounds, _____ pounds, _____ pounds.
 - 24. Were both injectors tested and left in good condition? _____
 - 25. Were steam leaks repaired? _____ pounds
 - 26. Hydrostatic test of _____ applied to main reservoirs.
 - 27. Condition of brake and signal equipment, _____ and inspected? _____
 - 28. Were drawbar and drawbar pins removed and inspected? _____
 - 29. Condition of draft gear and draw gear, _____
 - 30. Condition of driving gear, _____
 - 31. Condition of running gear, _____
 - 32. Condition of tender, _____
- I certify that the above report is correct.
_____, Inspector.

State of _____ County of _____
 Subscribed and sworn to before me this _____ day of _____, 19____, by _____, _____, Inspectors of the _____ Company.
 The above work has been performed and the report is approved.
 _____, Notary Public.
 _____, Officer in Charge.

§ 230.54 Specification card.

(a) A specification card, size 8 by 10½ inches, Form No. 4, containing the results of the calculations made in determining the working pressure and other necessary data shall be filed in the office of the Director, Bureau of Railroad Safety, for each locomotive boiler. A copy shall be filed in the office of the chief mechanical officer having charge of the locomotive. Every specification card shall be verified by the oath of the engineer making the calculations, and shall be approved by the chief mechanical officer. These specification cards shall be filed as promptly as thorough examination and accurate calculation will permit. Where accurate drawings of boilers are available, the data for specification card, Form No. 4, may be taken from the drawings, and such specification cards must be completed

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and forwarded prior to July 1, 1912. Where accurate drawings are not available, the required data must be obtained at the first opportunity when general repairs are made, or when flues are removed. Specification cards must be forwarded within 1 month after examination has been made, and all examinations must be completed and specification cards filed prior to July 1, 1913, flues being removed if necessary to enable the examination to be made before this date.

(b) When any repairs or changes are made which affect the data shown on the specification card a corrected card or an alteration report on an approved form, size 8 by 10½ inches, properly certified to, giving details of such changes, shall be filed within 30 days from the date of their completion. This report should cover:

- (1) Application of new barrel sheets or domes.
 - (2) Application of patches to barrels or domes of boilers or to portion of wrapper sheet of crown bar boilers which is not supported by staybolts.
 - (3) Longitudinal seam reinforcement.
 - (4) Changes in size or number of braces, giving maximum stress.
 - (5) Initial application of superheaters, arch or waterbar tubes, giving number and dimensions of tubes.
 - (6) Changes in number or capacity of safety valves.
- Report of patches should be accompanied by a drawing or blueprint of the patch, showing its location in regard to the center line of boiler, giving all necessary dimensions, and showing the nature and location of the defect. Patches previously applied should be reported the first time the boiler is stripped to permit an examination.

Form No. 4
 SPECIFICATION CARD FOR LOCOMOTIVE NO. _____
 Owned by _____ Railroad Company
 Operated by _____ Railroad Company
 Builder _____
 Builder's No. of Boiler _____
 When built _____
 Where built _____
 Type of boiler _____
 Material of boiler shell sheets _____
 Material of rivets _____

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Dome, where located _____
 Grate area in sq. ft. _____
 Height of lowest reading of gauge glass above crown sheet _____
 Height of lowest gauge cock above crown sheet _____
 Water bar tubes, O. diam _____ thickness _____
 Arch tubes, O. diam _____ thickness _____
 Fire tubes, number _____ length _____
 " " O. diam _____
 Safety valves: _____
 No. _____ Size _____ Make _____ Style _____

Firebox stay bolts, O. diam _____ spaced _____ x _____
 Combustion chamber stay bolts, O. diam _____
 Combustion chamber stay bolts, spaced _____ x _____
 Crown stays, O. diam, top _____ bottom _____
 Crown stays, spaced _____ x _____
 Crown bar rivets, O. diam., top _____ bottom _____
 Water space at firebox ring, sides _____ back _____ front _____
 Width of water space at sides of firebox measured at center line of boiler, front _____ back _____

Shell sheets:
 Front tube _____ thick.
 1st course " " I. diam.
 2d " " " " "
 3d " " " " "

Mem.: When courses are not cylindrical give inside diameter at each end.
 Firebox:
 Thickness of sheets—
 Tube _____ Crown _____ Slide _____
 Door _____ Combustion chamber _____
 Inside throat (if tube sheet is in two pieces) _____
 External firebox: _____
 Thickness of sheets—throat _____ back head _____ sides _____
 Dome inside diam _____
 Thickness of sheet _____ base _____ liner _____
 Were you furnished with authentic records of the tests of materials used in boiler? _____
 Records on file in the office of the _____ of the _____ Company show that the lowest tensile strength of the sheets in the shell of this boiler is: _____ pounds per sq. in. 1st course _____ pounds per sq. in.

2d " " " " "
 3d " " " " "
 Is boiler shell circular at all points? _____
 If shell is flattened, state location and amount _____
 Are all parts thoroughly stayed? _____
 Are dome and other openings sufficiently reinforced? _____
 Is boiler equipped with fusible plugs? _____
 Make working sketch here or attaching of longitudinal and circumferential seams used in shell of boiler, indicating on which courses used, and give calculated efficiency of weakest longitudinal seam.
 The maximum stresses at the allowed working pressure were found by calculation to be as follows: _____

Stay bolts at root of thread _____ lbs. per sq. in.
 Stay bolts at reduced section _____ lbs. per sq. in.
 Crown stays or crown bar rivets at root of thread or smallest section, top _____ lbs. per sq. in.
 Crown stays or crown bar rivets at root of thread or smallest section, bottom _____ lbs. per sq. in.
 Round and rectangular braces _____ lbs. per sq. in.
 Guesst braces _____ lbs. per sq. in.
 Shearing stress on rivets _____ lbs. per sq. in.

Tension on net section of plate in longitudinal seam of lowest efficiency, pounds per sq. in. _____
 Dimensions and data taken from locomotive were furnished by _____
 Data upon which above calculations were made were obtained from drawing No. _____ dated _____ furnished by _____ Company
 State of _____ County of _____
 _____ Mechanical Engineer, ss.
 _____ being duly sworn says that he is the officer who signed the foregoing specification, that he has satisfied himself of the correctness of the drawings and data used, has verified all of the calculations, and has examined the record of present condition of boiler dated _____ and sworn to by inspector _____ and believes that the design, construction, and condition of boiler No. _____ renders it safe

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for a working pressure of _____ pounds per square inch.

Subscribed and sworn to before me this _____ day of _____, 19____.

Approved: _____ Notary Public.

Form No. 19

ALTERATION REPORT FOR LOCOMOTIVE BOILERS

The following alterations were made on the boiler of locomotive No. _____ owned by _____ Company and operated by _____ Company, on _____, 19____, at _____ The builder's or assigned number stamped on the dome of this boiler is _____.

NOTE: Describe below what alterations were made. When blue prints or drawings accompany report, paste same below or on back of report.

State of _____ County of _____, _____ ss: _____ being duly sworn says that he inspected the above-mentioned alterations and certifies that the above report is correct.

Subscribed and sworn to before me this _____ day of _____, 19____.

Notary Public. _____ The above alterations have caused the following changes in calculated maximum stresses for this boiler:

NOTE: If stresses are not affected by the alterations, insert the words, "Stresses not changed."

Extract from § 230.54 of the Rules and Instructions for Inspection and Testing of Locomotive Boilers and their Appurtenances: When any repairs or changes are made which affect the data shown on the specification card a corrected card or an alteration report on an approved form, size 8 by 10 1/2 inches, properly certified to, giving details of such changes shall be filed within 30 days from the date of their completion. This report should cover—

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then be filed in the office of the railroad company at the place where the inspection is made.

Form No. 2

Locomotive: _____ Railroad. Number _____ Initials _____

LOCOMOTIVE INSPECTION REPORT

INSTRUCTIONS.—Each locomotive and tender must be inspected after each trip or day's work and report made on this form, whether needing repairs or not. Proper explanation must be made hereon for failure to repair any defects reported, and the form approved by foreman, before the locomotive is returned to service.

Inspected at _____, time _____ m. Date _____, 19____. Repairs needed: _____

be inspected. Confirmation of this report shall be immediately mailed to the Associate Administrator for Safety, Federal Railroad Administration, Washington, D.C. 20590, and contain a detailed report of the accident, including, to the extent known, the causes and a complete list of the killed or injured.

(41 FR 15848, Apr. 15, 1976)

Subpart B—Steam Locomotives and Tenders

§ 230.101 Design, construction, and maintenance.

The railroad company will be held responsible for the general design, construction, and maintenance of locomotives and tenders under its control.

§ 230.102 Responsibility for inspection and repairs.

The mechanical officer in charge, at each point where repairs are made, will be held responsible for the inspection and repair of all parts of locomotives and tenders under his jurisdiction. He must know that inspections are made as required and that the defects are properly repaired before the locomotive is returned to service.

§ 230.103 Term "inspector."

The term "inspector" as used in the rules and instructions in this subpart means, unless otherwise specified, the railroad company's inspector.

§ 230.104 Inspection after each trip or day's work.

Each locomotive and tender shall be inspected after each trip or day's work, and the defects found reported on an approved form to the proper representative of the company. This form shall show the name of the locomotive, the place, date, and time of the inspection, the defects found, and the signature of the employee making the inspection. The report shall be approved by the foreman, with proper written explanation made thereon for defects reported which were not repaired before the locomotive is returned to service. The report shall

Condition of injectors _____ Water glass _____ Condition of gauge cocks — Brakes _____ Condition of piston rod and valve stem packing _____ Safety valve lifts at _____ pounds. Seats at _____ pounds.

Main reservoir pressure. _____ pounds Brake pipe pressure. _____ pounds (Signature) _____ (Occupation) _____

The above work has been performed, except as noted, and the report is approved.

NOTE: Additional items may be added to this form if desired.

Foreman.

ASH PANS

§ 230.105 Ash pans.

(a) Ash pans shall be securely supported and maintained in safe and suitable condition for service. (b) Locomotives built after January 1, 1916, shall have ash pans supported from mud rings or frames. Locomotives built prior to January 1, 1916, which do not have the ash pans sup-

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A. Application of new barrel sheets or domes.

B. Application of patches to barrels or domes of boilers or to portion of wrapper sheet of crown-bar boilers which is not supported by staybolts.

C. Longitudinal seam reinforcements.

D. Changes in size or number of braces, giving maximum stress.

E. Initial application of superheaters, arch or water-bar tubes, giving number and dimensions of tubes.

F. Changes in number or capacity of safety valves.

Report of patches should be accompanied by a drawing or blue print of the patch, showing its location in regard to the center line of the boiler, giving all necessary dimensions, and showing the nature and location of the defect. Patches previously applied should be reported the first time the boiler is stripped to permit an examination.

INSTRUCTIONS FOR PREPARING FORM

Describe accurately what alterations were made.

The location and extent of cracks, pitting, corrosion, and grooving must be shown and dimensioned unless the defective plate is removed.

Drawing must show whether the plate underneath patch was removed.

Report must state whether iron or steel rivets were used.

The size of rivet holes must be given as well as the size of the rivets.

If authentic records of the tests of material used in making repairs can be obtained, the lowest tensile strength as shown by the test must be given; otherwise 50,000 pounds for steel and 45,000 pounds for wrought iron will be allowed as provided by rule 4.

In case of patches applied prior to July 9, 1914, if there is no authentic record of the date when or the shop where the alteration was made, insert the word "Unknown" in the proper blank spaces.

It is not necessary to report patches on surfaces supported by staybolts.

§ 230.55 Accident reports.

In the case of an accident due to failure, from any cause, of a locomotive boiler or any part or appurtenance thereof, resulting in serious injury or death to one or more persons, the carrier on whose line the accident occurred shall immediately report the accident by toll free telephone, Area Code 800-424-0201. The report shall state the nature of the accident, the number of persons killed or seriously injured, the place at which it occurred, as well as where the locomotive may

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ported from mud rings or frames shall be changed when the locomotive receives new fire box.

(c) The operating mechanism of all ash pans shall be so arranged that it may be safely operated and maintained in safe and suitable condition for service.

(d) No part of ash pan shall be less than 2 1/4 inches above the rail.

BRAKE AND SIGNAL EQUIPMENT

§ 230.106 Safe condition.

(a) It must be known before each trip that the brakes on locomotive and tender are in safe and suitable condition for service; that the air compressor or compressors are in condition to provide an ample supply of air for the service in which the locomotive is put; that the devices for regulating all pressures are properly performing their functions; that the brake valves work properly in all positions; and that the water has been drained from the air-brake system.

(b) Each steam road locomotive built on or after March 1, 1946, shall be equipped with a brake pipe valve attached to the front of the tender or on the rear of the back cab wall to enable the brakes to be applied in the event the occupants of the cab are, from any cause, prevented from applying the brakes in the usual manner. On locomotives having vestibule cabs the brake pipe valve shall be located adjacent to an exit. The words "Emergency brake valve" shall be legibly stencilled on the cab near the brake pipe

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valve or shall be shown on a badge plate adjacent thereto. That each steam road locomotive built before March 1, 1946, shall be so equipped the first time said locomotive receives class 3' or heavier repairs after June 1, 1946.

§ 230.107 Compressors.

(a) The compressor or compressors shall be tested for capacity by orifice test as often as conditions may require, but not less frequently than once each 3 months.

(b) The diameter or orifice, speed of compressor, and the air pressure to be maintained for compressors in common use are given in the following table:

Make	Size compressor	Single strokes per minute	Diam. orifice	Air pressure maintained
Westinghouse	9 1/4	120	1 1/4	60
Do	11	100	7/8	60
Do	8 1/4 c.	100	7/8	60
New York	2a	120	7/8	60
Do	6a	100	1 1/4	60
Do	5b	100	1 1/4	60

For diagram of orifice see Figure 14. This table shall be used for altitudes to and including 1,000 feet. For altitudes over 1,000 feet the speed of compressor may be increased 5 single strokes per minute for each 1,000 feet increase in altitude.

*Flues all new or reset. (Superheater flues may be excepted.) Necessary repairs to fire-box and boiler. Tires turned or new. General repairs to machinery and tender.

**NOTE:
EDGES OF HOLE TO BE SHARP
FOR DIAMETER OF ORIFICES
SEE §91.107**

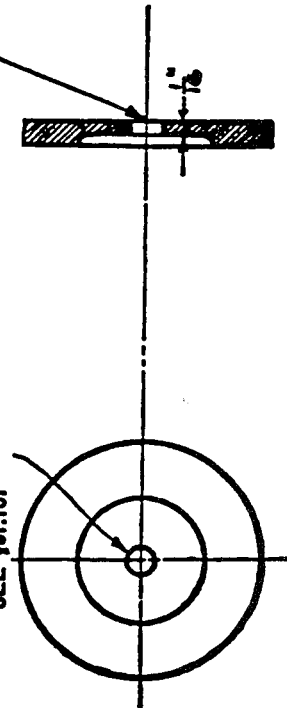


FIGURE 14.—Orifice.

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§ 230.108 Testing main reservoirs.

(a) Every main reservoir before being put into service, and at least once each 12 months thereafter, shall be subjected to hydrostatic pressure not less than 25 percent above the maximum allowed air pressure.

(b) The entire surface of the reservoir shall be hammered tested each time the locomotive is shopped for general repairs, but not less frequently than once each 18 months.

§ 230.109 Air gauges.

(a) Air gauges shall be so located that they may be conveniently read by the engineer from his usual position in the cab. Air gauges shall be tested at least once each 3 months, and also when any irregularity is reported.

(b) Air gauges shall be compared with an accurate test gauge or dead weight tester, and gauges found incorrect shall be repaired before they are returned to service.

§ 230.110 Time of cleaning.

Distributing or control valves, reducing valves, triple valves, straight-air double-check valves, and dirt collectors shall be cleaned as often as conditions require to maintain them in a safe and suitable condition for service, but not less frequently than once every 6 months.

§ 230.111 Stenciling dates of tests and cleaning.

(a) The date of testing or cleaning, and the initials of the shop or station at which the work is done, shall be legibly stenciled in a conspicuous place on the parts, or placed on a card displayed under glass in the cab of the locomotive, or stamped on metal tags. When metal tags are used, the height of letters and figures shall be not less than three-eighths inch, and the tags located as follows:

(b) One securely attached to brake pipe near automatic brake valve, which will show the date on which the distributing valve, control valve or triple valves, reducing valves, straight-air double-check valves, dirt collectors,

and brake cylinders were cleaned and cylinders lubricated.

(c) One securely attached to air compressor steam pipe, which will show the date on which the compressor was tested by orifice test.

(d) One securely attached to the return pipe near main reservoir, which will show the date on which the hydrostatic test was applied to main reservoirs.

§ 230.112 Piston travel.

(a) The minimum piston travel shall be sufficient to provide proper brake shoe clearance when the brakes are released.

(b) The maximum piston travel when locomotive is standing shall be as follows:

	Inches
Cam type of driving wheel brake	3 1/4
Other forms of driving wheel brake	6
Engine truck brake	8
Tender brake	9

§ 230.113 Foundation brake gear.

(a) Foundation brake gear shall be maintained in a safe and suitable condition for service. Levers, rods, brake beams, hangers, and pins shall be of ample strength, and shall not be fouled in any way which will affect the proper operation of the brake. All pins shall be properly secured in place with cotters, split keys, or nuts. Brake shoes must be properly applied and kept approximately in line with the tread of the wheel.

(b) No part of the foundation brake gear of the locomotive or tender shall be less than 2 1/4 inches above the rails.

§ 230.114 Leakage.

(a) Main reservoir leakage: leakage from main reservoir and related piping shall not exceed an average of 3 pounds per minute in a test of 3 minutes' duration, made after the pressure has been reduced 40 percent below maximum pressure.

(b) Brake pipe leakage shall not exceed 5 pounds per minute.

(c) With a full service application from maximum brake pipe pressure, and with communication to the brake cylinders closed, the brakes on the locomotive and tender shall remain applied not less than 5 minutes.

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§ 230.115 Train signal system.

The train signal system, when used, shall be tested and known to be in safe and suitable condition for service before each trip.

CABS, WARNING SIGNALS, AND SANDERS

§ 230.116 Cabs.

(a) *General provisions.* Cabs shall be securely attached or braced and maintained in a safe and suitable condition for service. Cab windows shall be so located and maintained that the engineers may have a clear view of track and signals from their usual and proper positions in the cab.

(b) *Clear vision windows.* The front cab doors or windows of road locomotives used in regions where snowstorms are generally encountered shall be provided with what is known as a "clear vision" window, or an appliance that will clean the outside of such doors or windows over sufficient area to provide a clear view of track and signals ahead. If a "clear vision" window is used it shall be not less than 5 inches high located as nearly as possible in line of the engineer's vision and so constructed and fitted that it may be easily opened, closed and fastened in desired position.

(c) *Steam pipes.* Steam pipes shall not be fastened to the cab. On new construction or when renewals are made of iron or steel pipe subject to boiler pressure in cabs, it shall be what is commercially known as double strength pipe, with extra heavy valves and fittings.

(d) *Cab back curtains.* Each locomotive used within the States of Colorado, Connecticut, Delaware, District of Columbia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, Nevada, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Dakota, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming, and within that part of California north of an imaginary line drawn from Carson City, Nev., through Placerville, Oroville, and Georgetown, Calif., to Trinidad, Calif.,

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except deckless locomotives and locomotives equipped with a vestibule cab, shall have suitable doors, or a suitable roll or slide-back curtain of sufficient length and width to cover the opening in rear wall of cab. On locomotives not equipped with hood curtain the drop-back curtain if used in lieu of slide curtain shall be of sufficient width to cover the space between the side curtains.

(e) *Cab side curtains.* During the period from November 1 to April 1 each locomotive used within the territory specified in paragraph (d) of this section, and not equipped with a vestibule cab, shall have suitable-side curtains at the gangway in addition to the curtain required by paragraph (d) of this section. Side curtains shall be of ample length and width, and be properly fitted and attached. Side curtains may be of the wide or narrow type. If wide side curtains extending from rear of cab back alongside of tender are used they shall extend at least 18 inches back of front of tender water legs and the tender handholds at gangway shall be offset at the rear so as to permit the side curtains to extend alongside of tender inside of handholds and not interfere with free and unobstructed use of the handholds. Side curtains shall have a suitable stiffening rod or member at rear of curtain. If narrow side curtains extending from rear of cab to tender are used, they shall be so arranged that a closely fitting joint can readily be formed at the tender when desired. Side curtains shall be so arranged and maintained that they can readily be opened, and shall be so arranged as not to interfere with free and unobstructed use of the handholds. Where apron or floor of tender at gangway does not extend full width of tender, side curtains shall be hung as nearly in line with the ends of the apron as is practicable, and shall extend not less than 12 inches below apron or tender floor and have attached thereto a flap suitable for placing on apron or tender floor and adequate for closing opening between side curtains and apron or tender floor. Side curtains shall extend to as near cab roof as practicable.

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(f) *Cab hood curtains.* (1) Each locomotive, except locomotives burning oil as fuel and locomotives equipped with a vestibule cab, used during the period from November 1 to April 1 within the territory specified in paragraph (d) of this section, excepting the States of Maryland, Virginia, Delaware, Kentucky, West Virginia, California, and the District of Columbia, shall have, in addition to the curtains required by paragraphs (d) and (e) of this section, a suitable hood curtain extending around cab overhang so arranged as to close the opening that would otherwise exist between cab overhang and top of tender and between top of side curtains and cab overhang.

(2) Deckless locomotives may have in lieu of the hood curtain a suitable roll curtain attached at or near rear of cab overhang and of sufficient width to cover the space between the side curtains. On coal-burning locomotives the roll curtain shall be so located and of sufficient length that it may be unrolled down in front of coal gates to within 15 inches of floor of tender. The roll curtain shall be so arranged that it may be rolled up to top of tender water legs or to its supporting member and fastened in either position when desired.

(3) The requirements of this paragraph shall not apply on locomotives used on lines operating south of the territory outlined therein and extending into the territory for a distance of not more than 15 miles.

(g) *Unnecessary openings in cab.* Unnecessary or excessive openings in locomotive cabs around reverse levers, grate-shaker levers, pipes, rods, running boards, doors, windows, between cab and boiler around wind sheets, or at any other place in cab or deck where rain, snow, or wind may enter shall not exist on any locomotive used during the period from November 1 to April 1 within the territory specified in paragraph (d) of this section.

(h) *Oil-burning locomotives.* (1) Oil-burning locomotives taking air for combustion through fire-door opening, used during the period from November 1 to April 1 within the territory specified in paragraph (d) of this section, shall have a suitable conduit extending

from fire-door intake to outside of cab which will prevent air being drawn into fire box from the interior of cab. This requirement is not intended to prohibit the peephole or the opening used for sanding provided the latter is provided with a suitable cover.

(2) The requirements of this paragraph shall be effective November 1, 1929, except on new locomotives or those out of service 15 or more consecutive days for repairs before November 1, 1929, in which instances the requirements shall be effective on the date the locomotives are put in service.

(i) *Cab storm windows.* (1) Each locomotive used in road service within the territory specified in paragraph (d) of this section shall have attached to the window on right and left sides of cab, or to the right and left sides of cab, a suitable storm window. Storm windows shall be hinged and arranged so that they can be folded back and fastened when desired.

(2) Upon application to the Director, Bureau of Railroad Safety, exemptions from the requirements of this paragraph may be granted if upon investigation it is found that clearances will not permit safe operation of such locomotives when equipped with storm windows.

§ 230.117 Cab aprons.

Cab aprons shall be of proper length and width to insure safety. Aprons must be securely hinged, maintained in a safe and suitable condition for service, and roughened, or other provision made, to afford secure footing.

§ 230.118 Fire doors and mechanical stops.

(a) Each locomotive shall have a mechanically operated fire door. (Or fire doors if more than one is used) so constructed and maintained that it may be operated by pressure of the foot on a pedal, or other suitable appliance, located on the floor of the cab or tender at a suitable distance from the fire door, so that it may be conveniently operated by the person firing the locomotive. *Provided,* That locomotives burning oil fuel may have in lieu of the mechanically operated fire door a hand-operated fire door suitable

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construction and so arranged that it may be securely bolted in closed position while the locomotive is being used.

(b) Free doors shall be maintained in a safe and suitable condition for service.

(c) All coal-burning steam locomotives which weigh on driving wheels 160,000 pounds or more to be used in fast or heavy passenger service, built on or after April 15, 1939, shall be equipped with a suitable type of mechanical stoker, and all coal-burning steam locomotives which weigh on driving wheels 175,000 pounds or more to be used in fast or heavy freight service, built on or after April 15, 1939, shall be equipped with a suitable type of mechanical stoker and such stokers shall be properly maintained. Each railroad which operates coal-burning locomotives of the above weights shall file with the director as of April 15, 1939, a list of all hand-fired coal-burning locomotives of the above weights built prior to April 15, 1939, which will in the future be used in fast or heavy service on its line, and mechanical stokers will be applied each 12-month period to not less than 20 percent of the total number so listed, and all locomotives included in said list shall be so equipped before April 15, 1944, and such stokers shall be properly maintained. For the present this order shall not apply to deckless locomotives equipped with two cabs, which are generally known as the "Mother Hubbard type," built prior to April 15, 1939.

§ 230.119 Cylinder cocks.

Necessary cylinder cocks, operative from cab of locomotive, shall be provided and maintained in a safe and suitable condition for service.

§ 230.120 Sanders.

Locomotives shall be equipped with proper standing apparatus, which shall be maintained in safe and suitable condition for service, and tested before each trip. Sand pipes must be securely fastened in line with the rails.

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§ 230.121 Whistle.

Each locomotive must be provided with a suitable steam whistle, so arranged that it may be conveniently operated by the engineer.

DRAW GEAR AND DRAFT GEAR

§ 230.122 Draw gear between locomotive and tender.

(a) The draw gear between the locomotive and tender, together with the pins and fastenings, shall be maintained in safe and suitable condition for service. The pins and drawbar shall be removed and carefully examined for defects not less frequently than once each 3 months. Suitable means for securing the drawbar pins in place shall be provided. Inverted drawbar pins shall be held in place by plate or stirrup.

(b) Two or more safety bars or safety chains of ample strength shall be provided between locomotive and tender, maintained in safe and suitable condition for service, and inspected at the same time draw gear is inspected.

(c) Safety chains or safety bars shall be of the minimum length consistent with the curvature of the railroad on which the locomotive is operated.

(d) Lost motion between locomotives and tenders not equipped with spring buffers shall be kept to a minimum, and shall not exceed one-half inch.

(e) When spring buffers are used between locomotives and tender the spring shall be applied with not less than ¾-inch compression, and shall at all times be under sufficient compression to keep the chafing faces in contact.

§ 230.123 Chafing irons.

Chafing irons of such radius as will permit proper curving shall be securely attached to locomotive and tender, and shall be maintained in condition to permit free movement laterally and vertically.

§ 230.124 Draft gear.

Draft gear and attachments on locomotives and tenders shall be securely fastened, and maintained in safe and suitable condition for service.

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DRIVING GEAR

§ 230.125 Crossheads.

Crossheads shall be maintained in a safe and suitable condition for service, with not more than ¼-inch vertical or ½-inch lateral play between crossheads and guides.

§ 230.126 Guides.

Guides must be securely fastened and maintained in a safe and suitable condition for service.

§ 230.127 Pistons and piston rods.

(a) Pistons and piston rods shall be maintained in safe and suitable condition for service. Piston rods shall be carefully examined for cracks each time they are removed, and shall be renewed if found defective.

(b) All piston rods applied after January 1, 1916, shall have the date of application, original diameter, and kind of material legibly stamped on or near the end of rod.

§ 230.128 Rods, main and side.

(a) Cracked or defective main or side rods shall not be continued in service.

(b) Autogenous welding of broken or cracked main and side rods not permitted.

(c) Bearings and bushings shall so fit the rod; as to be in a safe and suitable condition for service, and means be provided to prevent bushings turning in rod. Straps shall fit and be securely bolted to rods.

(d) The total amount of side motion of rods on crank pins shall not exceed one-fourth inch.

(e) Oil and grease cups shall be securely attached to rods, and grease cup plugs shall be equipped with suitable fastenings.

(f) Locomotives used in road service: The bore of main rod bearings shall not exceed pin diameters more than three thirty-seconds inch at front or back end. The total lost motion at both ends shall not exceed five thirty-seconds inch.

(g) The bore of side rod bearings shall not exceed pin diameters more than five thirty-seconds inch on main pin nor more than three-sixteenths inch on other pins.

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(h) Locomotives used in yard service: The bore of main rod bearings shall not exceed pin diameters more than one-eighth inch at front end or five thirty-seconds inch at back end.

(i) The bore of side rod bearings shall not exceed pin diameter more than three-sixteenths inch.

LIGHTS

§ 230.129 Locomotives used in road service.

(a) Each locomotive used in road service between sunset and sunrise shall have a headlight which shall afford sufficient illumination to enable a person in the cab of such locomotive who possesses the usual visual capacity required of locomotive engineers, to see in a clear atmosphere, a dark object as large as a man of average size standing at a distance of at least 800 feet ahead and in front of such headlight; and such headlight must be maintained in good condition.

(b) Each locomotive used in road service, which is regularly required to run backward for any portion of its trip, except to pick up a detached portion of its train, or in making terminal movements, shall have on its rear a headlight which shall meet the foregoing requirements.

(c) Such headlights shall be provided with a device whereby the light from same may be dimmed in yards and at stations or when meeting trains.

(d) When two or more locomotives are used in the same train, the leading locomotive only will be required to display a headlight.

§ 230.130 Classification lamps.

Each locomotive used in road service shall be provided with such classification lamps as may be required by the rules of the railroad company operating the locomotive. When such classification lamps are provided they shall be kept clean and maintained in safe and suitable condition for service.

§ 230.131 Locomotives used in yard service.

Each locomotive used in yard service between sunset and sunrise shall have

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two lights, one located on the front of the locomotive and one on the rear, each of which shall enable a person in the cab of the locomotive under the conditions, including visual capacity, set forth in § 230.129, to see a dark object such as there described for a distance of at least 300 feet ahead and in front of such headlight; and such headlights must be maintained in good condition.

§ 230.132 Cab lights.

Each locomotive used between sunset and sunrise shall have cab lamps which will provide sufficient illumination for the steam, air, and water gauges to enable the engineers to make necessary and accurate readings from their usual and proper positions in the cab. These lights shall be so located and constructed that the light will shine only on those parts requiring illumination. Locomotives used in road service shall have an additional lamp conveniently located to enable the persons operating the locomotive to easily and accurately read train orders and time tables, and so constructed that it may be readily darkened or extinguished.

RUNNING GEAR

§ 230.133 Driving, tralling, and engine truck axles.

(a) Driving, tralling, and engine truck axles with any of the following defects shall not be continued in service:
 (b) Bent axle; cut journals that cannot be made to run cool without turning; seamy journals in steel axles; transverse seams in iron axles, or any seams in iron axles causing journals to run hot, or unsafe on account of usage, accident, or derailment; driving, tralling, or engine truck axles more than one-half inch under original diameter, except for locomotives having all driving axles of the same diameter, when other than main driving axles, may be worn three-fourths inch below the original diameter.
 (c) The date applied, the original diameter of the journal, and the kind of material shall be legibly stamped on one end of each driving axle, tralling

truck axle, and engine truck axle applied after January 1, 1916.

§ 230.134 Tender truck axles.

The minimum diameters of axles for various axle loads shall be as follows:

Axle load	Minimum diameter of journal	Minimum diameter of wheel seat	Minimum diameter of center
50,000 pounds.....	5 1/2	7 1/2	6 1/2
35,000 pounds.....	5	6 1/2	5 1/2
31,000 pounds.....	4 1/2	6	5 1/4
22,000 pounds.....	3 3/4	5	4 1/2
16,000 pounds.....	3 1/4	4 1/2	3 3/4

§ 230.135 Defects in tender truck axles.

(a) Tender truck axles with any of the following defects shall not be continued in service:
 (b) Bent axle; cut journals that cannot be made to run cool without turning; seamy journals in steel axles, or transverse seams in journals of iron axles, or unsafe on account of usage, accident, or derailment; collars broken or worn to one-fourth inch or less in thickness, fillet in back shoulder worn out.

§ 230.136 Crank pins.

(a) Crank pins shall be securely applied. Shimming or prick punching crank pins will not be allowed. All crank pins applied after January 1, 1916, shall have the date applied and kind of material used legibly stamped on end of pin
 (b) Crank pin collars and collar bolts shall be maintained in a safe and suitable condition for service.

§ 230.137 Driving boxes.

Driving boxes shall be maintained in a safe and suitable condition for service. Broken and loose bearings shall be renewed. Not more than one shim may be used between box and bearing.

§ 230.138 Driving box shoes and wedges.

Driving box shoes and wedges shall be maintained in a safe and suitable condition for service.

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§ 230.139 Frames.

Frames, deck plates, tailpieces, pedestals, and braces shall be maintained in a safe and suitable condition for service, and shall be cleaned and thoroughly inspected each time the locomotive is in shop for heavy repairs.

§ 230.140 Lateral motion.

(a) The total lateral motion or play between the hubs of the wheels and the boxes on any pair of wheels shall not exceed the following limits:

	Inch
For engine truck wheels (trucks with awing centers).....	1
For engine truck wheels (trucks with rigid centers).....	1 1/4
For tralling truck wheels.....	1
For driving wheels (more than one pair).....	1 1/2

(b) These limits may be increased on locomotives operating on track where the curvature exceeds 20 degrees when it can be shown that conditions require additional lateral motion.

(c) The lateral motion shall in all cases be kept within such limits that the driving wheels, rods, or crank pins will not interfere with other parts of the locomotive.

§ 230.141 Pilots.

(a) Pilots shall be securely attached, properly braced, and maintained in a safe and suitable condition for service.
 (b) The minimum clearance of pilot above the rail shall be 3 inches, and the maximum clearance 6 inches.

§ 230.142 Spring rigging.

(a) Springs and equalizers shall be arranged to insure the proper distribution of weight to the various wheels of the locomotive, maintained approximately level and in a safe and suitable condition for service.
 (b) Springs or spring rigging with any of the following defects shall be renewed or properly repaired:
 (c) Top leaf broken or two leaves in top half of any three leaves in spring broken. (The long side of spring to be considered the top.)
 (d) Springs with leaves working in band.

(e) Broken coil springs.

(f) Broken driving box saddle, equalizers, hanger, bolt, or pin.

§ 230.143 Trucks; leading and tralling.

(a) Trucks shall be maintained in safe and suitable condition for service. Center plates shall fit properly, and the male center plate shall extend into the female center plate not less than three-fourths inch. All centering devices shall be properly maintained.

(b) A suitable safety chain shall be provided at each front corner of all four wheel engine trucks.

(c) All parts of trucks shall have sufficient clearance to prevent them from seriously interfering with any other part of the locomotive.

§ 230.144 Wheels.

(a) Wheels shall be securely pressed on axles. Prick punching or shimming the wheel fit will not be permitted. The diameter of wheels on the same axle shall not vary more than three thirty-seconds inch.

(b) Wheels used on standard gauge track will be out of gauge if the inside gauge of flanges, measured on base line, is less than 53 inches or more than 53 1/2 inches.

(c) The distance back to back of flanges of wheels mounted on the same axle shall not vary more than one-fourth inch.

§ 230.145 Defects in cast-iron or cast-steel wheels.

Cast-iron or cast-steel wheels with any of the following defects shall not be continued in service:

(a) *Sid flax*. When the flat spot is 2 1/2 inches or over in length, or if there are two or more adjoining spots each 2 inches or over in length.

(b) *Broken or chipped flange*. If the chip exceeds 1 1/2 inches in length and one-half inch in width.

(c) *Broken rim*. If the tread, measured from the flange at a point five-eighths inch above the tread, is less than 3 3/4 inches in width.

(d) *Shelled out*. Wheels with defective treads on account of cracks or shelled-out spots 2 1/2 inches or over, or so numerous as to endanger the safety of the wheel.

(e) *Brake burn*. Wheels having defective tread on account of cracks or shelling out due to heating.

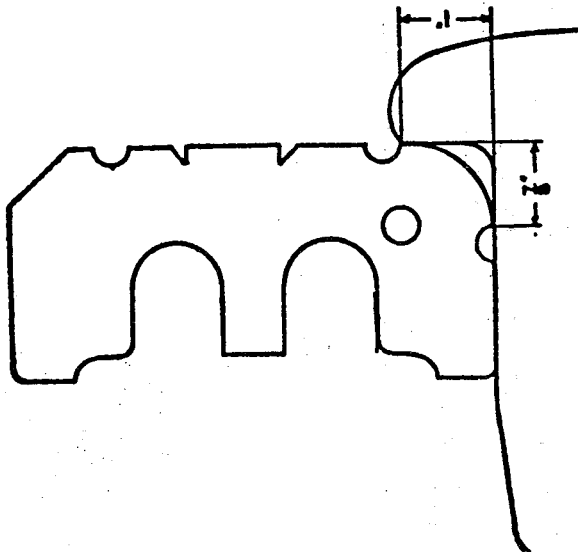


FIGURE 10.—Method of gauging worn flanges.

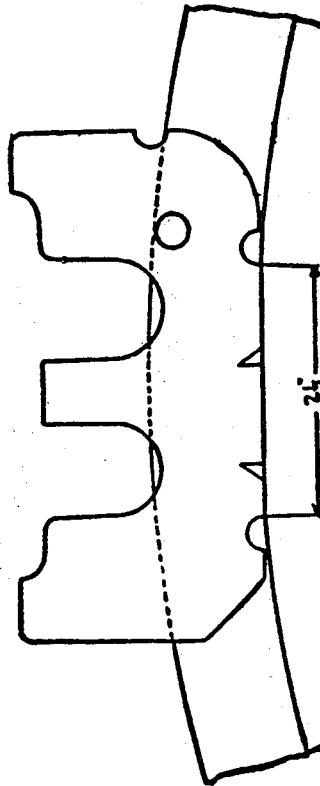


FIGURE 11.—Method of gauging shelled and flat spots.

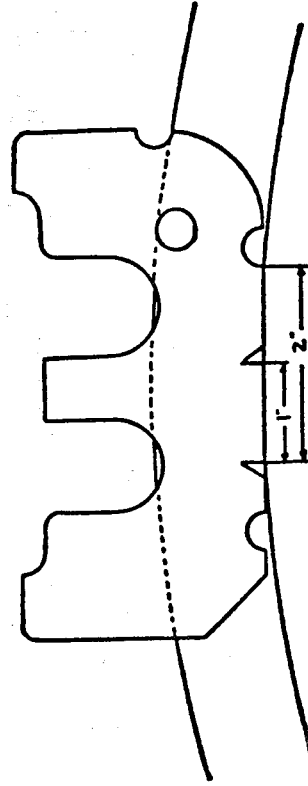


FIGURE 12.—Method of measuring flat spots of 1 and 2 inches.

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(f) *Seams.* Seams 1/4-inch long or over, at a distance of one-half inch or less from the throat of the flange, or seams 3 inches or more in length, if such seams are within the limits of 3/4 inches from the flange, measured at a point five-eighths inch from the tread.

(g) *Worn flanges.* Wheels on axles with journals 5 inches by 9 inches or over with flanges having flat vertical surfaces extending seven-eighths inch or more from the tread, or flanges 1 inch thick or less gauged at a point three-eighths inch above tread. Wheels on axles with journals less than 5 inches by 9 inches with flanges having flat vertical surfaces extending 1 inch or more from the tread, or

flanges 1/4-inch thick or less, gauged at a point three-eighths inch above the tread.

(h) *Tread worn hollow.* If the tread is worn sufficiently hollow to render the flange or rim liable to breakage.

(i) *Bursts.* If the wheel is cracked from the wheel fit outward.

(j) *Cracks.* Cracked tread, cracked plate, or one or more cracked brackets.

(k) *Gauge.* Wheels out of gauge.

(l) *Loose.* Wheels loose on axle.

NOTE: The determination of flat spots, worn flanges, and broken rims shall be made by a gauge as shown in figure 8, and its application to defective wheels as shown in figures 9, 10, 11, 12, and 13.

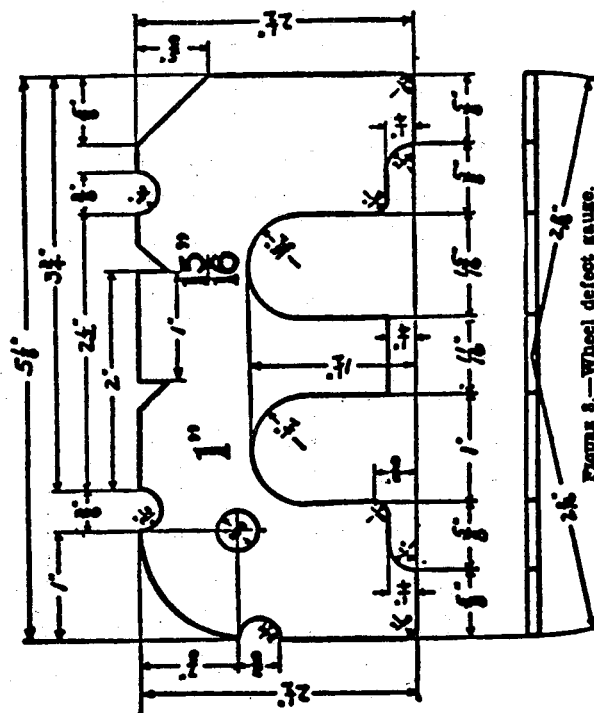


FIGURE 8.—Wheel defect gauge.

This gauge to be used in determining flat spots, worn flanges, and broken rims. (See §§ 230.145, 230.146, 230.150.)

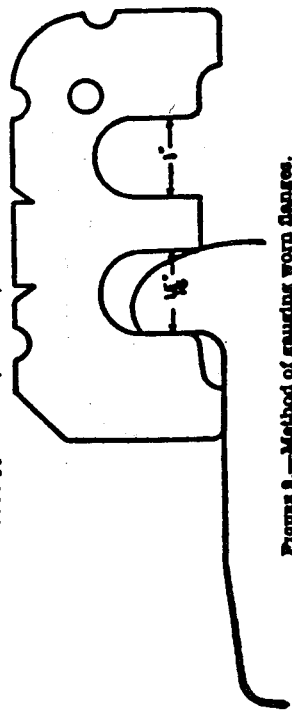


FIGURE 9.—Method of gauging worn flanges.

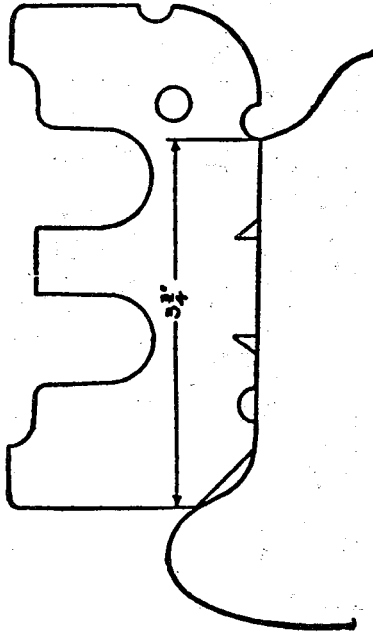


FIGURE 13.—Method of gauging broken rims.

§ 230.146 Defects in forged steel or steel tired wheels.
 Forged steel or steel tired wheels with any of the following defects shall not be continued in service:

- (a) Loose wheels; loose, broken, or defective retaining rings or tires; broken or cracked hubs, plates, spokes, or bolts.
- (b) Solid flat spot 2 1/4 inches or longer; or, if there are two or more adjoining spots, each 2 inches or longer.
- (c) Defective tread on account of

cracks or shelled out spots 2 1/4 inches or longer, or so numerous as to endanger the safety of the wheel.

- (d) Broken flange.
- (e) Flange worn to fifteen-sixteenths inch or less in thickness, gauged at a point three-eighths inch above the tread, or having flat vertical surface, 1 inch or more from tread; tread worn five-sixteenths inch; flange more than 1 1/4 inches from tread to top of flange, or thickness of tires or rims less than shown in figures 4, 5, 6, and 7.
- (f) Wheels out of gauge.

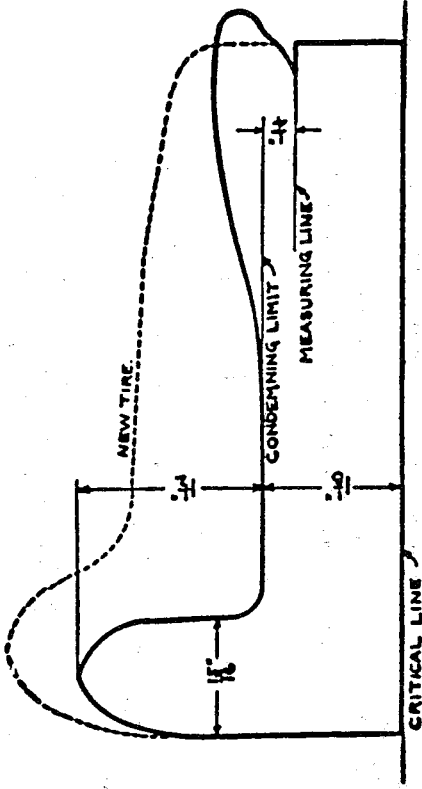


FIGURE 5.—Steel tire.

Shrinkage fastening only. Minimum thickness for steel tires. Engine and tender truck wheels. (See § 230.146.)

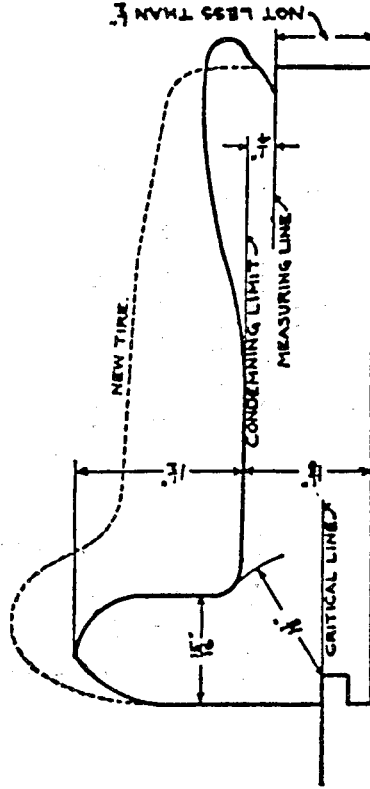


FIGURE 6.—Steel tire.

Retaining ring fastening. Minimum thickness for steel tires. Engine and tender truck wheels. (See § 230.146.)

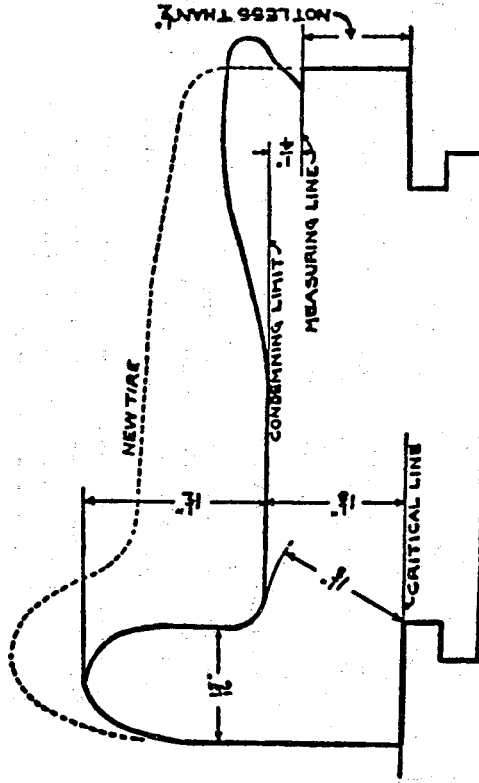


FIGURE 4.—Steel tire.

Retaining ring fastening. Minimum thickness for steel tires. Engine and tender truck wheels. (See § 230.146.)

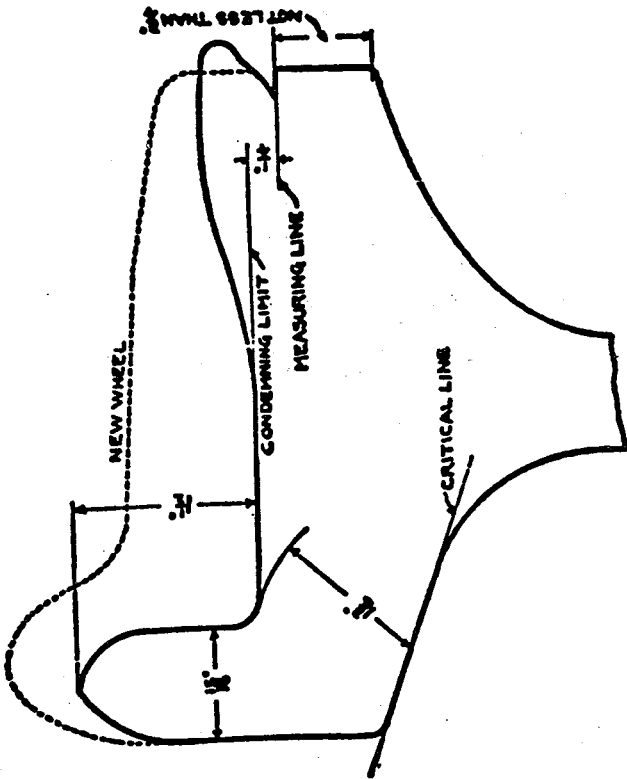


Figure 7.—Steel wheel.

Minimum thickness of rim. Engine and tender truck wheels. (See § 230.146.)

- § 230.147 Driving and tralling wheels.
 - (a) The minimum height of flange for driving or tralling wheel tires, measured from tread, shall be 1 inch for locomotives used in road service, except that on locomotives where construction will not permit the full height of flange on all drivers the minimum height of flange on one pair of driving wheels may be five-eighths inch.
 - (b) The minimum height of flange for driving wheel tires, measured from tread, shall be seven-eighths inch for locomotives used in switching service.
 - (c) The maximum taper for tread of tire from throat of flange to outside of tire, for driving and tralling wheels for locomotives used in road service, shall be one-fourth inch, and for locomotives used in switching service five-sixteenths inch.
 - (d) The minimum width of tires for driving and tralling wheels of standard-gauge locomotives shall be 5 1/4 inches for flanged tires, and 6 inches for plain tires.
- § 230.148 Driving wheel counterbalance.
 - Driving wheel counterbalance shall be maintained in a safe and suitable condition for service.
- § 230.149 Defects.
 - (a) Driving or tralling wheel centers with three adjacent spokes or 25 percent of the spokes in wheel broken.
 - (b) Loose wheels; loose, broken, or defective tires or tire fastenings; broken or cracked hubs, or wheels out of gauge.

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(e) The minimum width of tires for flanged tires and 5 1/4 inches for plain driving and tralling wheels of narrow-gauge locomotives shall be 5 inches for

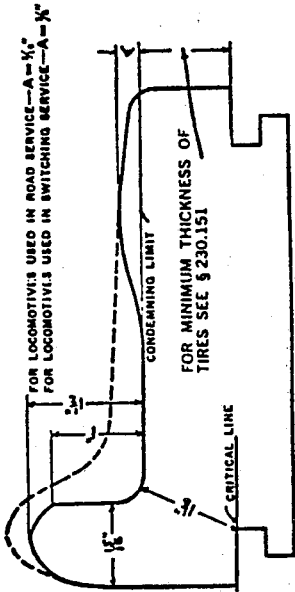


Figure 1.—Steel tire. Retaining ring fastening. Driving and tralling wheels.

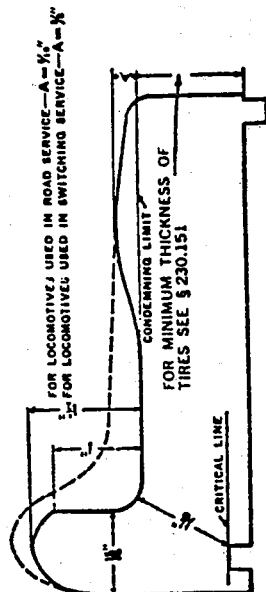


Figure 2.—Steel tire. Shrinkage fastening with shoulder and retaining segments. Driving and tralling wheels.

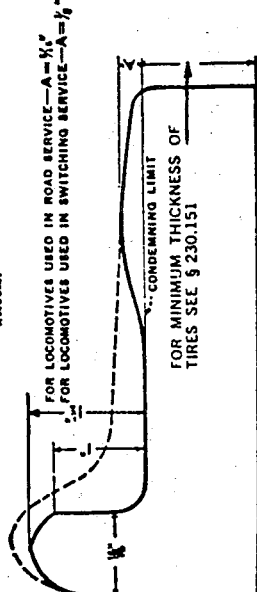


Figure 3.—Steel tire. Shrinkage fastening. Driving and tralling wheels.

- (f) When all tires are turned or new tires applied to driving and tralling wheels, the diameter of the wheels on the same axle, or in the same driving wheel base, shall not vary more than three-thirty-seconds inch. When a single tire is applied the diameter must not vary more than three thirty-seconds inch from that of the opposite wheel on the same axle. When a single pair of tires is applied the diameter must be within three thirty-seconds inch of the average diameter of the
- (g) Driving and tralling wheel tires with any of the following defects shall not be continued in service:
 - (h) Sld flat spot 2 1/2 inches or more in length; flange fifteen-sixteenths inch or less in thickness, gauged at a point three-eighths inch above the tread; or having flat vertical surface 1 inch or more from tread; tread worn hollow five-sixteenths inch on locomotives used in road service, or three-

eighths inch on locomotives used in switching service; flange more than 1 1/4 inches from tread to top of flange. (See figures 1, 2, and 3.)

NOTE: The determination of flat spots and worn flanges shall be made by a gauge as shown in figure 8, and its application to defective tires as shown in figures 9, 10, and 11.

§ 230.151 Minimum thickness for driving wheel and trailer tires on standard and narrow gauge locomotives.

When retaining rings are used, mea-

surements of tires to be taken from the outside circumference of the ring, and the minimum thickness of tires may be as much below the limits specified above as the tires extend between the retaining rings, provided it does not reduce the thickness of the tire to less than 1 1/4 inches from the throat of flange to the counterbore for the retaining rings.

The minimum thickness for driving wheel tires shall be 1 inch for locomotives operated on track of 2-foot gauge.

Weight per axle (weight on drivers divided by number of pairs of driving wheels)	Diameter of wheel center		Minimum thickness, service limits	
	Road service	Switching service	Inches	Inches
30,000 pounds and under	44 and under	1 1/4	1 1/4	1 1/4
	Over 44 to 50	1 1/4	1 1/4	1 1/4
	Over 50 to 56	1 1/4	1 1/4	1 1/4
	Over 56 to 62	1 1/4	1 1/4	1 1/4
	Over 62 to 68	1 1/4	1 1/4	1 1/4
	Over 68 to 74	1 1/4	1 1/4	1 1/4
	Over 74	1 1/4	1 1/4	1 1/4
Over 30,000 to 35,000 pounds	44 and under	1 1/2	1 1/2	1 1/2
	Over 44 to 50	1 1/2	1 1/2	1 1/2
	Over 50 to 56	1 1/2	1 1/2	1 1/2
	Over 56 to 62	1 1/2	1 1/2	1 1/2
	Over 62 to 68	1 1/2	1 1/2	1 1/2
	Over 68 to 74	1 1/2	1 1/2	1 1/2
	Over 74	1 1/2	1 1/2	1 1/2
Over 35,000 to 40,000 pounds	44 and under	1 3/4	1 3/4	1 3/4
	Over 44 to 50	1 3/4	1 3/4	1 3/4
	Over 50 to 56	1 3/4	1 3/4	1 3/4
	Over 56 to 62	1 3/4	1 3/4	1 3/4
	Over 62 to 68	1 3/4	1 3/4	1 3/4
	Over 68 to 74	1 3/4	1 3/4	1 3/4
	Over 74	1 3/4	1 3/4	1 3/4
Over 40,000 to 45,000 pounds	44 and under	2	2	2
	Over 44 to 50	2	2	2
	Over 50 to 56	2	2	2
	Over 56 to 62	2	2	2
	Over 62 to 68	2	2	2
	Over 68 to 74	2	2	2
	Over 74	2	2	2
Over 45,000 to 50,000 pounds	44 and under	2 1/4	2 1/4	2 1/4
	Over 44 to 50	2 1/4	2 1/4	2 1/4
	Over 50 to 56	2 1/4	2 1/4	2 1/4
	Over 56 to 62	2 1/4	2 1/4	2 1/4
	Over 62 to 68	2 1/4	2 1/4	2 1/4
	Over 68 to 74	2 1/4	2 1/4	2 1/4
	Over 74	2 1/4	2 1/4	2 1/4
Over 50,000 to 55,000 pounds	44 and under	2 1/2	2 1/2	2 1/2
	Over 44 to 50	2 1/2	2 1/2	2 1/2
	Over 50 to 56	2 1/2	2 1/2	2 1/2
	Over 56 to 62	2 1/2	2 1/2	2 1/2
	Over 62 to 68	2 1/2	2 1/2	2 1/2
	Over 68 to 74	2 1/2	2 1/2	2 1/2
	Over 74	2 1/2	2 1/2	2 1/2
Over 55,000 pounds	44 and under	2 3/4	2 3/4	2 3/4
	Over 44 to 50	2 3/4	2 3/4	2 3/4
	Over 50 to 56	2 3/4	2 3/4	2 3/4
	Over 56 to 62	2 3/4	2 3/4	2 3/4
	Over 62 to 68	2 3/4	2 3/4	2 3/4
	Over 68 to 74	2 3/4	2 3/4	2 3/4
	Over 74	2 3/4	2 3/4	2 3/4

TENDERS

§ 230.152 Tender frames.

(a) Tender frames shall be maintained in a safe and suitable condition for service.

(b) The difference in height between the deck on the tender and the cab floor or deck on the locomotive shall not exceed 1 1/2 inches.

(c) The minimum width of the gangway between locomotive and tender, while standing on straight track, shall be 16 inches.

§ 230.153 Feed water tanks.

(a) Tanks shall be maintained free from leaks, and in safe and suitable condition for service. Suitable screens must be provided for tank wells or tank hose. Feed water tanks on road locomotives that take water en route, built on or after March 1, 1946, shall be equipped with a device whereby the height or quantity of water in the tender feed water tank may be ascertained from the cab or tender deck of the locomotive, which shall be properly maintained. That each steam road locomotive that takes water en route, built before March 1, 1946, shall be so equipped the first time said locomotive receives class 3' or heavier repairs after June 1, 1946.

(b) Not less frequently than once each month the interior of the tank shall be inspected, and cleaned if necessary.

(c) Top of tender behind fuel space shall be kept clean, and means provided to carry off waste water. Suitable covers shall be provided for filling holes.

§ 230.154 Oil tanks.

The oil tanks on oil burning locomotives shall be maintained free from leaks. An automatic safety cut-out valve, which may be operated by hand from inside and outside of cab, shall be provided for the oil-supply pipe.

*Flues all new or reset. (Superheater flues may be excepted.) Necessary repairs to firebox and boiler. Tires turned or new. General repairs to machinery and tender.

§ 230.155 Tender trucks.

(a) Tender truck center plates shall be securely fastened, maintained in a safe and suitable condition for service, and provided with a center pin properly secured. When shims are used between truck center plates, the male center plate must extend into the female center plate not less than three-fourths inch.

(b) Truck bolsters shall be maintained approximately level.

(c) When tender trucks are equipped with safety chains, they shall be maintained in a safe and suitable condition for service.

(d) Side bearings shall be maintained in a safe and suitable condition for service.

(e) Friction side bearings shall not be run in contact.

(f) The maximum clearance of side bearings on rear truck shall be three-eighths inch, and if used on front truck three-fourths inch, when the spread of side bearings is 50 inches. When the spread of the side bearings is increased, the maximum clearance may be increased in proportion.

THROTTLE AND REVERSING GEAR

§ 230.156 Throttles.

Throttles shall be maintained in safe and suitable condition for service, and efficient means provided to hold the throttle lever in any desired position.

§ 230.157 Reverse gear.

Reverse gear, reverse levers, and quadrants shall be maintained in a safe and suitable condition for service. Reverse lever latch shall be so arranged that it can be easily disengaged, and provided with a spring which will keep it firmly seated in quadrant. Proper counterbalance shall be provided for the valve gear.

(a) All steam locomotives built on or after September 1, 1937, shall be equipped with a suitable type of power-operated reverse gear.

(b) All steam locomotives used in road service built prior to September

1. 1937, which weigh¹ on driving wheels 150,000 pounds or more, and all steam locomotives used in switching service, built prior to September 1, 1937, which weigh on driving wheels 130,000 pounds or more, which are equipped with manually operated reverse gear, shall have a suitable type of power-operated reverse gear substituted therefor the first time that said locomotives are given repairs defined by the United States Railroad Administration as class 1² or 2,³ and all such steam locomotives shall be so equipped before September 1, 1942.

(c) Each steam locomotive used in road service, built on or after March 1, 1946, that has an air operated power reverse gear shall be so equipped the first time said locomotive receives a class 3⁴ or heavier repairs after June 1, 1946. If an independent air reservoir is used as the source of auxiliary supply for the reverse gear, it shall be provided with means to automatically prevent loss of pressure in event of failure of the main reservoir air pressure.

(d) When steam connections to air operated power reverse gear are used, the operating valve handle shall be conveniently located in the cab of the locomotive and so arranged and maintained that in case of air failure steam may be quickly used to operate the reverse gear. The operating rod or lever shall be plainly marked and equipped with a handle or wheel of a distinctive design.

¹See footnote 1 to § 230.153.

²Weight on driving wheels means the weight of a locomotive in working order that is supported by the coupled driving wheels when it rests on a straight and level track, as defined in the Locomotive Cyclopedia.

³New boiler or new back end. Flues new or reset. Tires turned or new. General repairs to machinery and tender.

⁴New firebox, or one or more shell courses, or roof sheet. Flues new or reset. Tires turned or new. General repairs to machinery and tender.

§ 230.158 Modification of rules.

Upon application to the Director, Bureau of Railroad Safety, modification of the rules in this subpart not inconsistent with their purpose, may be made for roads operating less than five locomotives, if an investigation shows that conditions warrant it.

FILING REPORTS

§ 230.159 Report of inspection.

Not less than once each month and within 10 days after inspection a report of inspection, Form No. 1 (§ 230.51), size 6 by 9 inches, shall be filed with the United States Inspector in charge for each locomotive used by a railroad company, and a copy shall be filed in the office of the chief mechanical officer having charge of the locomotive.

§ 230.160 Posting of copy.

A copy of the monthly inspection report, Form No. 1 (§ 230.51), or annual inspection report, Form No. 3 (§ 230.53),¹ properly filled out, shall be placed under glass in a conspicuous place in the cab before the locomotive inspected is put into service.

§ 230.161 Annual report.

Not less than once each year, and within 10 days after required tests have been completed, a report of such tests, showing general condition of the locomotive, shall be submitted on Form No. 3 (§ 230.53),¹ size 6 by 9 inches, and filed with the United States Inspector in charge, and a copy shall be filed in the office of the chief mechanical officer having charge of the locomotive. The monthly report will not be required for the month in which this report is filed.

NOTE: Samples of Forms Nos. 1 and 3, indicating exact size, color, weight, and grade of paper, will be furnished on application.

§ 230.162 Accident reports.

In the case of an accident due to failure, from any cause, of a steam locomotive or tender, or any part or appurtenance thereof, resulting in serious

¹Form No. 3 should be printed on yellow paper.

Injury or death to one or more persons, the carrier on whose line the accident occurred shall immediately report the accident by toll free telephone, Area Code 800-424-0201. The report shall state the nature of the accident, the number of persons killed or seriously injured, the place at which it occurred, as well as where the locomotive or tender may be inspected. Confirmation of this report shall be immediately mailed to the Associate Administrator for Safety, Federal Railroad Administration, Washington, D.C. 20590, and contain a detailed report of the accident, including to the extent known, the causes and a complete list of the killed or injured.

(41 FR 15848, Apr. 15, 1978)

Subpart C—Other Than Steam Locomotives and Appurtenances

§ 230.200 Applicability of subpart.

This subpart contains rules and instructions for the inspection and testing of locomotives propelled by other than steam power except electrically operated units designed to carry freight and/or passenger traffic operated by a single set of controls. For multiple operated electric units see Subpart D of this part.

§ 230.200a Responsibility for design, construction, inspection, and repair.

The railroad company is held responsible for the general design construction, inspection, and repair of all locomotives used or permitted to be used on its line. It must know that all inspections, tests, and repairs are made and reports made and filed as required, and that all parts and appurtenances of every locomotive used are maintained in condition to meet the requirements of the law and the rules and instructions in this subpart. Nothing contained in the rules and instructions in this subpart, however, shall be construed as prohibiting any carrier from enforcing additional rules and instructions not inconsistent with those in this subpart contained, tending to a greater degree of precaution against accidents.

§ 230.201 Locomotive unit.

(a) *Definition.* A locomotive may consist of one or more units. The term "unit" as used in the rules and instructions in this subpart means the least number of wheel bases together with superstructures capable of independent propulsion, but not necessarily equipped with an independent control.

(b) *Marking front.* The letter "F" shall be legibly shown on each side of every locomotive unit near the end, which, for identification purposes, will be known as the front end. The unit number shall be legibly shown on each side of every locomotive unit and shall be shown on the specification card, Form No. 4-A.

FORM NO. 4-A.

SPECIFICATION FOR LOCOMOTIVE UNIT NO. —

Operated by _____ Company _____ at _____ date _____, 19____

Builder's number _____

Propelled by _____

Gauge of wheels _____

Kind and number of current collectors _____

Trolley wire or third rail voltage _____

Number, make and type of motors _____

_____ Voltage _____

Make and type of control equipment _____

_____ Control circuit voltage _____

Make and Type of Internal Combustion Engine _____

Kind of brakes _____

(Give make, type and schedule number) _____

Number, make and type of air compressors _____

Main air reservoir pressure _____

Train line pressure _____

Make and type of lightning arrester _____

Does unit carry steam boiler? _____

Part 231-Railroad Safety Appliance Standards

This part establishes standards for railroad safety appliances for standard gage railroads.

Part 232-Railroad Power Brakes and Drawbars

This part establishes standards for railroad power brakes and drawbars for standard gage railroads. It provides for inspection, testing, and maintenance of air brake equipment.

Part 233-Signal Systems Reporting Requirements

This part establishes reporting requirements with respect to methods of train operation, block signal systems, interlockings, traffic control systems, automatic train stop, train control and cab signal systems, or other similar appliances, methods, and systems.

This part applies to railroads that operate on standard gage track which is part of the general railroad system of transportation.

Accidents resulting from signal failure shall be reported to FRA by telephone at 800-424-0201 within 24 hours of learning of the occurrence.

Signal failures shall be reported within 15 days using Form FRA F 6180-14.

Not later than April 1 of each year a signal systems annual report must be filed using Form FRA F 6180-47.

Copies of forms FRA F 6180-14, F 6180-47 are enclosed in the forms section.

Part 234-Grade Crossing Signal System Safety

This part establishes reporting requirements with respect to the operation of highway-rail grade crossing warning systems by railroads that operate on standard gage track that is part of the general railroad system of transportation.

Accidents involving grade crossing signal failure shall be reported to FRA by telephone at 800-424-0201 within 24 hours of their occurrence.

Each railroad shall report grade crossing signal system failures to FRA within 15 days of the failure. Form FRA F 6180-83 shall be used.

False activation of grade crossing signal systems shall be reported to FRA using Form FRA F 6180-83 within 30 days after expiration of the month during which the false activation occurred.

Before April 1, 1992, or before commencing operations each railroad shall file with FRA one copy of its current highway-rail grade crossing maintenance, inspection, and testing rules and procedures. If a railroad has no written procedures, a statement to that effect shall be filed with FRA. Amendments to a railroads highway-rail grade crossing procedures shall be filed with FRA.

Before April 1, 1992 each railroad shall file with FRA information regarding circuit type and component age for each of its active highway-rail grade crossing signal systems. Form FRA F 6180-87 shall be used.

Copies of forms FRA F 6180-83 and F 6180-87 are enclosed in the forms section.

**Part 235-Instructions Governing Applications for
Approval of a Discontinuance or Material
Modification of a Signal System or
Relief from the Requirements of Part 236**

This part which establishes application procedures for approval to discontinue or materially modify block signal systems, interlockings, traffic control systems, automatic train stop, train control, or cab signal systems, or other similar appliances, devices, methods, or systems, and provides for relief from part 236 of this title.

This part applies to railroads that operate on standard gage track which is part of the general railroad system of transportation.

Applications or requests for reconsideration of an application shall be submitted by an authorized officer of the carrier to FRA. Applications may be submitted by letter.

**Part 236-Rules, Standards, and Instructions
Governing the Installation, Inspection,
Maintenance, and Repair of Signal and
Train Control Systems, Devices, and Appliances**

This part which establishes rules, standards, and instruction governing the installation, inspection, maintenance, and repair of signal and train control systems, devices, and appliances applies to railroads that operate on standard gage track which is part of the general railroad system of transportation.

Part 240-Qualification and Certification of Locomotive Engineers

This part establishes minimum Federal safety requirements for the eligibility, training, testing, certification, and monitoring of all locomotive engineers. A railroad is not restricted from implementing additional or more stringent requirements for its locomotive engineers that are not inconsistent with this part. The qualifications for locomotive engineers applies to any person who operates a locomotive, unless that person is specifically excluded by a provision in this part.

This part applies to all railroads that operate locomotives on standard gage track that is part of the general railroad system of transportation.

Before beginning operations each railroad shall submit to FRA its written program and a description of how its program conforms to the specific requirements of this part in accordance with procedures contained in Appendix B of Part 240. Section 240.103 establishes a schedule for submission by different classes of railroads.

Part 245-Railroad User Fees

This part establishes a schedule of fees to be assessed equitably to railroads to cover the costs incurred by the Federal Railroad Administration in administering the Safety Act. Beginning in Fiscal Year 1991 each railroad shall pay an annual user fee to the FRA.

This part applies to all railroads except those railroads whose entire operations are confined within an industrial installation. Completion of Form FRA F 6180.90 entitled "Written Questionnaire on Whether Your Company is a Railroad Subject to FRA User Fee Regulations" will assist entities in determining if they meet the definition of a railroad. A copy of Form FRA F 6180.90 can be obtained from FRA, Office of Safety, Washington, DC 20590.

Each railroad subject to this part is to submit to FRA, no later than March 1st of each year, a report identifying the railroad's total train miles for the prior calendar year; the total road miles owned, operated under lease, or controlled (but not including trackage rights) by the railroad as of December 31 of the previous calendar year; and the railroad's total number of employee hours for the prior calendar year. The report is to be made on Form FRA F 6180.91--Annual Report on Railroads Subject to User Fees. Blank copies of this form will mailed to each railroad during the month of January.

Part 174-Carriage by Rail (Hazardous Materials)

This part establishes requirements to be observed with respect to the transportation of hazardous materials in or on rail cars.

In addition to the requirements of this part, regulations pertaining to the transport of hazardous materials by rail are contained in Parts 171 General information, regulations, and definitions; Part 172 Hazardous materials tables and hazardous materials communications regulations; Part 173 Shippers-general requirements for shipments and packaging; and Part 179-Specifications for tank cars.

Notice must be made immediately to the Department by telephoning 800-424-8802 when as a direct result of hazardous materials the following occurs:

- a person is killed
- a person receives injuries resulting in hospitalization
- property damage exceeds \$50,000
- the general public is evacuated for one or more hours
- one or more major transportation arteries or facilities are closed or shut down one or more hours
- the operational flight pattern or routine of an aircraft must be changed
- there is fire, breakage, spillage, or suspected contamination from radioactive or etiologic agents

Within 30 days of discovery of a hazardous materials incident as described above, a hazardous materials carrier must file a report with the Department using DOT Form F 5800.1.

An example of DOT Form F 5800.1 is in the forms section.

Section 4:
National Grade Crossing Inventory



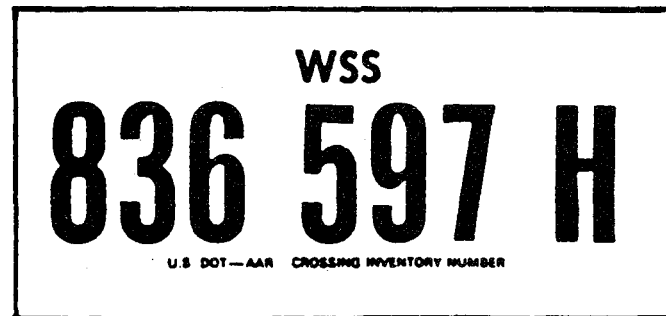
U.S. Department
of Transportation

**Federal Railroad
Administration**

400 Seventh St. S.W.
Washington, D.C. 20590

Data and Information Available

DO YOU KNOW ME?



NATIONAL RAILROAD-HIGHWAY GRADE CROSSING INVENTORY NUMBER

Beginning in 1974, an attempt was made to inventory and assign a unique number to all public and private highway-railroad intersections and pedestrian crossings in the United States. As a part of the original inventory, data were collected for all crossings although only crossing location and classification information was recorded for private, industrial and pedestrian crossings and grade separations. Detailed operational and physical characteristics data were obtained from the more than 200,000 public at-grade crossings inventoried.

Due to the magnitude of the inventory project and the complexity and expense of a site visit to each crossing, only limited data could be included in the inventory. A National Advisory Committee having representation from all involved parties in grade crossing installation and maintenance was appointed to provide technical guidelines in the implementation of the inventory. Among its duties, the Advisory Committee was to determine the type and extent of the data to be collected. In general, the data elements to be included in the inventory were selected on the basis of their significance to the computation of a priority index for grade crossing improvements. For example, the data base includes information regarding:

Trains per day	Vehicles per day
Type of warning device	Train speed
Number of tracks	Number of highway lanes
Classification of track	Classification of highway
Advance warning signs	Crossing surface type

The railroad industry and each of the states participated in the initial inventory. Following an agreed upon procedure, the states and railroads continue to submit new and updated grade crossing information to the Federal Railroad Administration. The FRA, through its contractor, updates and maintains the national data file. The information in the file is for public use and may be obtained through the FRA Office of Safety.

Rather than attempt to describe each data element contained in the file, a reproduction of the current data form that is used to update individual crossing records is shown on the following page. In addition to these data, some states and some railroads maintain additional crossing information. However, these data are not generally available to the public and may be obtained only through the state or railroad maintaining the supplemental file.

In many ways the National Railroad-Highway Crossing Inventory number, placed at all public and private grade crossings, is similar to your credit card or bank account number. Important information is assigned to the number by agencies and individuals daily. Police, accident investigators, project engineers, utilities and railroad employees are but a few of those who refer to these numbers frequently.

The need for accurate information assigned to the appropriate grade crossing is important in any decision to upgrade existing warning devices. Accidents, number of motor vehicles and trains using the crossing and type of warning device are a few of the data elements that are critical in the computation of a "hazard index" for individual grade crossings. Not only is it important that these data are kept current, but also, as with the credit card and bank account, it is critical that the information be assigned to the proper identification number.

In addition to the assignment of data regarding the physical and operational characteristics of a grade crossing, the inventory number is being used on all FRA grade crossing accident reports. Many states and local jurisdictions use the number on reports of accidents at or near grade crossings. Most railroads and states use the inventory number on crossing improvement project documents. Railroad crews report near misses and other information regarding a crossing by the inventory number. Some utility companies use the number to locate rail right-of-way crossings. All of these factors add to the need for validation of the number to which the information is being assigned.

The crossing inventory numbering system was designed to reduce the possibility of error in recording grade crossing data. The number assigned to each rail-highway intersection is unique. Although consideration was given to develop a numeric code for items such as states, counties, railroads, and railroad mile posts, it was determined that frequent changes in the railroad system brought about by mergers, consolidations and acquisitions would require continual changes in the numbering system. Therefore, a simple numeric system requiring the use of a maximum of six digits was adopted by the National Advisory Committee. Some exceptions were made in the numbering system. For example, numbers having the same digit repeated consecutively three or more times were eliminated (7777). Also, numbers having less than three digits were not used.

Another feature of the National Inventory number that makes it similar to the credit card, is the Alpha Check Character. You will notice that the number illustrated above has an alpha character (letter) at the end of the number. When the inventory numbers were generated by the computer, they were accompanied by the check character. Therefore, everytime a number is used, it can be validated by the check character, just as the bank or credit card company validates the assignment of data to an account.

The procedure can be illustrated by validating the inventory number, 836 597 H, included in the article.

$$\begin{aligned}\text{Step 1. Numeric Code} &= [(8 \times 1) + (3 \times 2) + (6 \times 3) + (5 \times 4) + (9 \times 5) + (7 \times 6)] \\ &= (8 + 6 + 18 + 20 + 45 + 42) \\ &= 139\end{aligned}$$

$$\begin{aligned}\text{Step 2. Alpha Code} &= 139 - (22 \times 6) \\ &= 139 - 132 \\ &= 7\end{aligned}$$

From the table, the alpha character represented by the number 7 is the letter H.

Therefore, the inventory number (836 597 H) has been validated.



CROSSING INVENTORY NUMBER CALCULATION

A. Initiating Agency

Crossing Inventory forms can be initiated by:

- 1 - The Railroad
- 2 - The State Highway Department
- 3 - DOT

Those forms initiated by DOT are usually changes or corrections to the file.

B. Crossing inventory Number

A Crossing Inventory number must pass an algorithmatic check. This is a six (6) digit plus one (1) letter code number. Sum the products of each of the first six digits times the digit's position (position one is the left-most digit). Divide this total sum by 22 and then interpolate the remainder according to the following table:

0-A	7-H	14-R
1-B	8-J	15-S
2-C	9-K	16-T
3-D	10-L	17-U
4-E	11-M	18-V
5-F	12-N	19-W
6-G	13-P	20-X
		21-Y

The last character of the Crossing number should match with above.

Example: 0 7 6 - 5 2 1 C
 x 1 2 3 4 5 6

Sum: 0+14+18+20+10+6 = 68

68 ÷ 22 = 3 and Remainder 2 = C

U.S. DOT - AAR CROSSING INVENTORY FORM

A. INITIATING AGENCY

RAILROAD STATE

C. REASON FOR UPDATE:

CHANGES IN EXISTING CROSSING DATA
 NEW CROSSING
 CLOSED CROSSING

D. EFFECTIVE DATE

M D Y

B. CROSSING NUMBER

Part I Location and Classification of All Crossings (Must Be Completed)

1. Railroad Operating Company

2. Railroad Division or Region

3. Railroad Subdivision or District

4. State

5. County

6. County Map. Ref. No.

DO NOT WRITE IN THIS SPACE

State County

8. Nearest City

9. Highway Type and No.

City Nearest City

7. City

10. Street or Road Name

11. RR I. D. No.

RR Code Timetable Station

12. Nearest RR Timetable Station

13. Branch or Line Name

14. Railroad Mile Post

15. Pedestrian Crossing

16. Private Vehicle Crossing

17. Public Vehicle Crossing

1. at grade A. 1. Farm 2. Residential 3. Recreational 4. Industrial
 2. RR under B. 5. at grade C. 8. signs-specify
 3. RR over 6. RR under 9. signals-specify
 7. RR over 0. none

1. at grade
 2. RR under
 3. RR over

COMPLETE REMAINDER OF FORM ONLY FOR PUBLIC VEHICLE CROSSINGS AT GRADE

Part II Detailed Information for Public Vehicular at Grade Crossing

1A. Typical Number of Daily Train Movements

2. Speed of Train at Crossing

Table with 2 columns: Daylight (6 AM to 6 PM) and Night (6 PM to 6 AM). Each column has 'thru trains' and 'switching' sub-columns with input boxes.

1B. Check if Less Than One Movement Per Day 5

A. Maximum time table speed 1

B. Typical Speed Range Over Crossing from 2 to 3 mph

3. Type and Number of Tracks

main 1 other 2 If other specify 3

4. Does Another RR Operate a Separate Track at Crossing?

Yes No Specify: RR 2

5. Does Another RR Operate Over Your Track at Crossing?

Yes No Specify: RR 2

6. Type of Warning Device at Crossing

A. Signs

Table with 5 columns: Crossbucks (reflectORIZED, non-reflectORIZED), Standard Highway Stop Sign, Other Stop Signs, Other Signs Specify (05, 06, 07, 08).

B. Train Activated Devices

Table with 7 columns: Gates (red & white reflectORIZED, other colored), Cantilevered Flashing Lights (over traffic lane, not over traffic lane), Mast Mounted Flashing Lights, Other Flashing Lights Specify, Highway Traffic Signals, Wigwags, Bells.

C. Specify Special Warning Device not Train Activated 19

D. No Signs or Signals 20

7. Is Commercial Power Available? Yes No

8. Does Crossing Signal Provide Speed Selection for Trains? Yes No N/A

9. Method of Signalling for Train Operation: Is Track Equipped with Signals? Yes No

Part III Physical Data

1. Type of Development 1. Open Sp. 2. Res 3. Comm. 4. Ind. 5. Inst.

5. Is Highway Paved Yes No

9. Does Track Run Down A Street? Yes No

2. Smallest Crossing Angle

0°-29° 30°-59° 60°-90°

6. Pavement Markings Stoplines RR Xing Sym. None

10. Nearby Intersecting Highway? Yes No

3. Number of Traffic Lanes Crossing Railroad Number

7. Are RR Advance Warning Signs Present? Yes No

4. Are Truck Pullout Lanes Present? Yes No

8. Crossing Surface 1. Sec. Timber 2. Full Wd Plank 3. Asphalt 4. Concrete Slab
 5. Concrete Pave 6. Rubber 7. Metal Sections 8. Other Mats
 9. Unconsolidated 0. Other Specify

Part IV Highway Department Information

1. Highway System

2. Is Crossing on State Highway System? Yes No.

4. Estimate AADT

I. D. Number

3. Functional Classification of Road over Crossing

5. Estimate Percent Trucks



U.S. Department
of Transportation
**Federal Railroad
Administration**

400 Seventh St., S.W.
Washington, D.C. 20590

In a recent review of the forms being submitted by railroads and states throughout the country, it has been noted that many forms have been submitted without the changes being circled in accordance with the instructions. Unfortunately, this has led to data input errors or certain changes not being input into the data file. While we try to watch for such occurrences, you can help us. Please double check your submittals and remind those staff who complete the forms that any and all changed items need to be circled. We will appreciate any help that you can give us in "spreading the word". (Ref. National Railroad-Highway Crossing Inventory Update Manual pages C-3 and C-5).



Abbreviation Key
For Computer Printout
"Fill-In-The-Blanks List"

<u>Abbreviation</u>	<u>Explanation</u>
A. CROSSING or ID NO.	U.S. DOT-AAR Crossing Number
EFFECTIVE DATE	Enter date when the crossing status changed
STATE (or (ST)	State Abbreviation
ST CD	FIPS State Code
CNTY	FIPS County Code
RR	Railroad Operating Company
B. HWY #	Highway Type and Number
STATUS	Crossing Status (Open or Closed)
XBR	Number of Crossbucks, Reflectorized
XBNR	Number of Crossbucks, Non-reflectorized
FL OVR	Number of Cantilevered Flashing Lights Over Traffic Lanes
FL NOV	Number of Cantilevered Flashing Lights Not Over Traffic Lanes
FL MST	Number of Mast Mounted Flashing Lights
GT RW	Number of Gates, Red and White Reflectorized
GT OTH	Number of Gates, Other Colored
STP STD	Number of Standard Highway Stop Signs
C. DAY-THRU	Typical number of Daily Daylight (6 a.m. to 6 p.m.) Thru Train Movements
DAY-SWT	Typical Number of Daily Daylight (6 a.m. to 6 p.m.) Switching Train Movements
NGT-THRU	Typical Number of Daily Night (6 p.m. to 6 a.m.) Thru Train Movements
NGT-SWT	Typical Number of Daily Night (6 p.m. to 6 a.m.) Switching Train Movements
LT-1-MOV	Less Than One Train Movement Per Day (Yes or No)
MX-TT-SPD	Maximum Timetable Speed
MIN-SPD	Minimum Typical Train Speed
MAX-SPD	Maximum Typical Train Speed
SPD-SEL	Crossing Signal Speed Selection Provided (Yes, No, N/A)
D. TYPE Or TYP-POS	Crossing Type and Position 1st number: (1-pedestrian, 2-private, 3-public) 2nd number: (1-at-grade, 2-RR under, 3-RR over)
WDCODE	Highway Warning Device Class at Crossing
	<ul style="list-style-type: none"> 8 - gates 7 - flashing lights 6 - highway signals, wigwags or bells 5 - special protection 4 - crossbucks 3 - stop signs 2 - other signs or signals 1 - none of the above

***** under MILEPOST

Milepost has an alphabetical character and will
not print out



U.S. Department
of Transportation
**Federal Railroad
Administration**

"CROSSING TYPES"

TYP-POS Decode
(PFX Key)

11 Pedestrian at grade
12 Pedestrian RR Under
13 Pedestrian RR Over
21 Private at grade
22 Private RR Under
23 Private RR Over
31 Public at grade
32 Public RR Under
33 Public RR Over

Key for WDCODE

Highway Protection Class at Crossing:

8 - gates
7 - flashing lights
6 - highway signals, wigwags or bells
5 - special protection
4 - crossbucks
3 - stop signs
2 - other signs or signals
1 - none of the above.



HIGHWAY SYSTEM AND FUNCTIONAL CLASSIFICATION CODES

The highway System and Functional Classification Codes used for the National Rail-Highway Crossing Inventory are those contained in the National Railroad-Highway Crossing Procedures Manual. The codes are as follows:

HIGHWAY SYSTEM CODES

<u>CODE</u>	<u>HIGHWAY TYPE</u>	<u>INCLUDES</u>
1	Interstate	Interstate, rural and urban, open to traffic.
2	Federal-aid primary	Other FA primary, rural and urban.
3	Federal-aid urban	Federal-aid-urban.
4	Federal-aid secondary	FA secondary rural and urban, State or local jurisdiction.
8	Non-Federal-aid	Other State highways, rural or urban (non - FA); Local rural roads; Local city streets.

FUNCTIONAL CLASSIFICATION CODES

<u>CODE</u>	<u>RURAL</u>
01	Interstate
02	Other principal arterial
06	Minor arterial
07	Major collector
08	Minor collector
09	Local

<u>CODE</u>	<u>URBAN</u>
11	Interstate
12	Other freeway and expressway
14	Other principal arterial
16	Minor arterial
17	Collector
19	Local

NOTE: The tens digit for the urban codes must be "1", and for the rural codes "0".

Section 5:

Railroad Highway Crossing Improvements

RAILROAD-HIGHWAY CROSSING IMPROVEMENTS

FEDERAL AND STATE FUNDING

A major source of Federal funding to plan and construct improvements at railroad-highway grade crossings is available through Federal highway legislation. Congress authorizes the expenditure of specified sums of monies, both from the Federal Highway Trust Fund and from general revenues, that are available for highway improvements.

The Secretary of Transportation is charged with the responsibility of distributing among the States the funds that have been authorized by Congress. The distribution of authorized funds is based on formulas contained in Federal highway legislation.

Under Federal-State procedures, the individual State highway agencies have the responsibility for selecting individual projects in accordance with their established priorities and initiating requests for Federal funding. The Federal Government, through the U. S. Department of Transportation's Federal Highway Administration (FHWA), develops regulations for implementing Federal highway legislation, provides guidance to the State highway agencies in developing their highway facilities, and is responsible for review and approval at key project stages when Federal-aid highway funds are used.

Possible improvements at railroad-highway crossing include:

- (a) Installation of advance warning signs, crossbucks, and pavement markings,
- (b) Installation or upgrading of train-activated warning devices (flashing lights or flashing lights with gates),
- (c) Crossing illumination,
- (d) Crossing surface improvements,
- (e) New grade separations, and reconstruction of existing grade separations,
- (f) Grade crossing closures, or removal of existing crossings,
- (g) Grade crossing eliminations by relocation of either the highway or the railroad,

HOW TO OBTAIN FEDERAL-AID HIGHWAY FUNDING

If an individual or a local agency has a railroad-highway project for which it wishes to obtain Federal-aid highway funding, the principal contact should be with the State highway agency. All Federal-aid highway funds are distributed to the States which have the responsibility to determine the priority of usage. The States establish procedures by which projects are to be developed so they satisfy Federal and State requirements. Contact with the State should be made prior to beginning preliminary engineering on a specific project to ensure that proper procedural requirements will be followed if the project uses Federal funds.

FORMS

FRA F 6180.3 Hours of Service Report - Railroads (49 CFR 228)

FRA F 6180.14 False Proceed Signal Report (49 CFR 233)

FRA F 6180.45 Annual Summary Report of Railroad Injury and Illness (49 CFR 225)

FRA F 6180.47 Signal Systems Annual Report (49 CFR 233)

FRA F 6180.49a Locomotive Inspection and Repair Record (49 CFR 229)

FRA F 6180.54 Rail Equipment Accident/Incident Report (49 CFR 225)

FRA F 6180.55 Railroad Injury and Illness Summary (49 CFR 225)

FRA F 6180.55a Railroad Injury and Illness Summary Continuation Sheet (49 CFR 225)

FRA F 6180.56 Annual Railroad Report of Manhours by State (49 CFR 225)

FRA F 6180.57 Rail-Highway Grade Crossing Accident/Incident Report (49 CFR 225)

FRA F 6180.78 Notice to Railroad Employee Involved in Rail Equipment Accident/Incident Attributed to Employee Human Factor; Employee Statement Supplementing Railroad Accident Report (49 CFR 225)

FRA F 6180.81 Employee Human Factor Attachment (49 CFR 225)

FRA F 6180.83 Highway-Rail Grade Crossing Warning System Failure Report (49 CFR 234)

FRA F 6180.87 Grade Crossing Signal System Information (49 CFR 234)

FRA F 6180.90 UNAVAILABLE Obtain copy through FRA, Office of Safety, Washington, DC 20590

Form No. 1 Monthly Locomotive Inspection and Repair Report (49 CFR 230)

Form No. 2 Locomotive Inspection Report (49 CFR 230)

Form No. 3 Annual Locomotive Inspection and Repair Report (49 CFR 230)

Form No. 4 Specification Card for Locomotive No. ____ (49 CFR 230)

DOT F 5800.1 Hazardous Materials Incident Report (49 CFR 174)

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

MONTH AND YEAR SHEET NO.

HOURS OF SERVICE REPORT - RAILROADS

(Employees on duty in excess of that permitted by the Hours of Service Law)

NAME OF ROAD	DIVISION
TRAIN OR ENGINE NUMBER <i>(If train or engine crew)</i>	NAME OF OFFICE OR STATION <i>(If operator or dispatcher)</i>

REPORTING OFFICER <i>(Signature & title)</i>	CHECK IF APPLICABLE: <input type="checkbox"/> 9 HOUR OFFICE <input type="checkbox"/> 12 HOUR OFFICE
ADDRESS	

NAME OF EMPLOYEE	OCCUPATION	* CONSECUTIVE TIME OFF DUTY IN PRECEDING 24-HOUR PERIOD		ON DUTY		OFF DUTY		TOTAL TIME ON DUTY		TIME OFF DUTY UNTIL NEXT SERVICE PERIOD	
				DATE	TIME	DATE	TIME				
		HRS.	MINS.	DATE	TIME	DATE	TIME	HRS.	MINS.	HRS.	MINS.

Time spent in deadhead transportation to a duty assignment is time on duty. Where more than one on duty period is involved, all times must be shown.

*Must not include any time spent deadheading.

CAUSE:

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FALSE PROCEED SIGNAL REPORT

REPORT FOR (month/year)

DATE

All railroads subject to Regulations of the Federal Railroad Administration shall submit a false proceed signal report, original only, to the Federal Railroad Administration within five days after a false proceed occurs. If no false proceed occurs during any calendar month, a report showing "No Failures" must be filed within ten days after the end of the month.

REPORTING CARRIER (railroad & region or division)

Copies of this form will be furnished upon request to the Department of Transportation, Federal Railroad Administration, Office of Safety, Washington, D.C. 20590

MAIL TO

REPORTING OFFICER (signature/title)

A failure should not be counted more than one time in items 1, 2, 3, and 4; the failure should be classified under the basic system or appliance of which it forms an essential part. E.g.: assume grounds cause a block signal to indicate a false proceed causing corresponding indications of a cab signal system on each train approaching this point, such failures should be included in item 1, Block Systems.

The following abbreviations may be used in the report.

A false proceed failure is a failure of a system, device or appliance to indicate or function as intended which results in less restriction than intended.

- A—Automatic
- AB—Automatic block
- ACS—Automatic cab signal
- APB—Absolute permissive block
- ATC—Automatic train control
- ATS—Automatic train stop
- CL—Color light
- CPL—Color position light
- E—Electric
- EM—Electromechanical
- EP—Electropneumatic
- FP—False proceed
- MB—Manual block
- M—Mechanical
- P—Pneumatic
- PL—Position light
- SA—Semiautomatic
- TC—Traffic control

TYPE OF SYSTEM	DATE	LOCOMOTIVE NUMBER	DEVICE THAT FAILED	LOCATION (city and state)
¹ BLOCK SYSTEMS <input type="checkbox"/> AB <input type="checkbox"/> APB <input type="checkbox"/> TC				
² INTERLOCKING <input type="checkbox"/> REMOTE <input type="checkbox"/> AUTO-MATIC <input type="checkbox"/> MANUAL				
³ AUTOMATIC SYSTEMS <input type="checkbox"/> ATS <input type="checkbox"/> ATC <input type="checkbox"/> ACS				
⁴ OTHER (specify)				

NATURE AND CAUSE OF FAILURE; CORRECTIVE ACTION TAKEN

(If more space is required, continue on reverse)

ANNUAL SUMMARY REPORT
of
RAILROAD INJURY AND ILLNESS
(Covering Calendar Year _____)

COMPLETE THIS REPORT WHETHER OR NOT THERE WERE ANY REPORTABLE OCCUPATIONAL INJURIES OR ILLNESSES. READ INSTRUCTIONS BEFORE COMPLETING THIS FORM

I. ESTABLISHMENTS INCLUDED IN THIS REPORT
This report should include all establishments located in, or identified by, the reporting railroad. Enter the number of establishments (see definition in the FRA Guide).

II. AVERAGE EMPLOYMENT IN REPORTING YEAR
Enter the average number of employees during calendar year. Count all classes of employees, including seasonal, temporary, part-time, etc. See instructions in the FRA Guide for examples of computing your average employment.

_____ (Round to the nearest whole number)

III. TOTAL HOURS WORKED IN REPORTING YEAR
Enter the total number of hours actually worked by all employees. DO NOT include any non-work time even

though paid, such as vacations, sick leave, holidays, etc.

_____ (Round to the nearest whole number)

IV. REPORTABLE INJURIES AND ILLNESSES

Did you have any reportable injuries or illnesses during the reporting year? (Check one)

- (1) No - complete Section VII,
- (2) Yes - complete Sections V, VI and VII.

V. MONTHLY DATA OF REPORTABLE INJURIES AND ILLNESSES

Of the Total Reportable Occupational Injuries and Illnesses (Section VI, Line 10 column 1), how many occurred in the following months?

Calendar Year	
Jan. _____	Oct. _____
Feb. _____	Nov. _____
Mar. _____	Dec. _____
Apr. _____	July _____
May _____	Aug. _____
June _____	Sept. _____

Name

CORPORATE NAME AND MAILING ADDRESS OF REPORTING RAILROAD →

Alphabetic Railroad Code (See FRA Guide, Appendix A)	
STREET	ZIP CODE
CITY	STATE

VI. INJURY AND ILLNESS SUMMARY (Covering Calendar Year _____)

INSTRUCTIONS:

- This section may be completed by Copying data from the "Annual Summary" which you are required to complete and post in your establishment.
- Leave Section VI blank if there were no reportable injuries or illnesses during the reporting year.
- Line 9 - Add all Occupational Illnesses (Lines 2 through 8) and enter on this line for each column (1) through (8).
- Line 10 - Add Occupational Injuries (Line 1) and the sum of all Occupational Illnesses (Line 9) and enter on this line for each column (1) through (8).

LINE	INJURY AND ILLNESS CATEGORY	TOTAL CASES (1)	DEATHS (2)	LOST WORKDAY CASES ONLY				NONFATAL CASES WITH OUT LOST WORKDAYS (7)	TERMINATIONS OR PERMANENT TRANSFERS (8)
				Total lost work-day cases (Includes restricted workday cases) (3)	Cases involving days away from work (4)	Days away from work (5)	Days of restricted work activity (6)		
1	OCCUPATIONAL INJURIES								
2	Occupational Skin Diseases or Disorders								
3	Dust Diseases of the Lungs								
4	Respiratory Conditions Due to Toxic Agents								
5	Poisoning (Systemic Effects of Toxic Materials)								
6	Disorders Due to Physical Agents								
7	Disorders Associated With Repeated Trauma								
8	All Other Occupational Illnesses								
9	TOTAL OCCUPATIONAL ILLNESSES (Add Lines 2 through 8)								
10	TOTAL OCCUPATIONAL INJURIES AND ILLNESSES (Add Lines 1 and 9)								

VII. COMMENTS:

Report prepared by: _____

Area Code and Phone: _____

Title: _____

Date: _____

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD

SIGNAL SYSTEMS ANNUAL REPORT

REPORTED BY (Name, Title, Address)

IN SERVICE ON
JANUARY 1, 19

MAIL TO

Department of Transportation
Federal Railroad Administration
Office of Safety, RRS-11
Washington, D.C. 20590

METHODS OF
TRAIN OPERATION

MILES

Road

Track

TRAFFIC CONTROL

AUTOMATIC BLOCK

NON-AUTOMATIC BLOCK

TIMETABLE AND TRAIN
ORDERS

INTERLOCKINGS MAINTAINED BY REPORTING CARRIER

CONTROLLED POINTS IN
TRAFFIC CONTROL TERRITORY

Automatic	MANUALLY OPERATED				REMOTELY CONTROLLED		Electric	Electro-pneumatic
	Electric	Electro-pneumatic	Electro-mechanical	Mechanical	Electric	Electro-pneumatic		

AUTOMATIC TRAIN STOP, TRAIN CONTROL, AND CAB SIGNAL SYSTEMS

	TRAIN STOP ONLY	TRAIN CONTROL ONLY	CAB SIGNALS ONLY	TRAIN STOP AND CAB SIGNALS	TRAIN CONTROL AND CAB SIGNALS	TRAIN STOP, TRAIN CONTROL, & CAB SIGNALS
Road Miles						
Track Miles						
Locomotives						
Motor Cars						

REMARKS

DEFINITIONS: For the purpose of this report, the following definitions will apply:

Traffic Control System. A block-signal system under which train movements are authorized by cab signals or block signals whose indications supersede the superiority of trains for both opposing and following movements on the same track.

Automatic Block Signal System. A block-signal system wherein the use of each block is governed by an automatic block signal, cab signal, or both.

Non-Automatic Block Signal System. A term used to denote any method of maintaining an interval of space between trains as distinguished from an automatic block signal system, a traffic control system, an automatic cab signal system without roadway signals, or time interval system.

Track Operated Jointly. Track that is jointly owned or jointly controlled and operated by two or more companies.

Trackage Rights. The right to use track over which one company exercises exclusive control of operation but permits another company to operate trains over it, subject to the rules and regulations of the controlling company.

Automatic Train Stop System. A system so arranged that its operation will automatically result in the application of the brakes until the train has been brought to a stop.

Automatic Train Control System. A system so arranged that its operation will automatically result in the following:

A full service application of the brakes which will continue either until the train is brought to a stop, or, under control of the engineman, its speed is reduced to a predetermined rate.

When operating under a speed restriction, an application of the brakes when the speed of the train exceeds the predetermined rate and which will continue until the speed is reduced to that rate.

Automatic Cab Signal System. A system which provides for the automatic operation of the following:

(a) Cab signal, a signal located in engineman's compartment or cab, indicating a condition affecting the movement of a train and used in conjunction with interlocking signals and in conjunction with or in lieu of block signals, and

(b) Cab indicator, a device located in the cab which indicates a condition or a change of condition of one or more elements of the system.

Remotely Controlled Interlocking. An arrangement of signals and signal appliances operated from an interlocking machine, which is located outside the interlocking limits, and so interconnected by means of mechanical and/or electric locking that their movements must succeed each other in proper sequence, train movements over all routes being governed by signal indication.

INSTRUCTIONS:

Show total road and track mileage, to the nearest mile, for each method of operation.

Show total number of interlockings and controlled points on entire system.

Each railroad should report its own track of jointly operated track under any of the methods of operation and attention called to the fact that the track is jointly operated in a footnote on this form. Where track is jointly owned each road should report an equal percentage of the total mileages.

Lines over which a company has trackage rights should be included only in the operating company.

It is not necessary to report separately the miles of single track and miles of double track included under any method of train operation.

Report on this form all installations of automatic train stop, train control, and cab signal systems on the line of the reporting carrier, including foreign locomotives and motorcars which operate over these installations.

Multiple unit type cars should be reported as motorcars.

Where the mileage listed is equipped with more than one type of roadway device show by footnote any duplication of mileage.

Equipped by Foreign Carrier. Show the number of locomotives equipped by foreign carrier for operation exclusively over reporting carrier's installation with devices indicated in the column headings (include both locomotives equipped for forward operation only and locomotives equipped for either direction operation). Identify the foreign carrier by initials.

Equipped by Foreign Carrier. Show the number of motor cars equipped by foreign carrier for operation exclusively over reporting carrier's installation with devices indicated in the column headings (include both motorcars equipped for forward operation only and motorcars equipped for either direction operation). Identify the foreign carrier by initials.

Foreign carrier locomotives and motorcars may be shown in "Remarks" column.

A system map, color-coded, to show location of method of operation on reported mileage, including automatic train control, cab signal or train stop systems as in service, must accompany this form and subsequent forms when changes occur during the previous year.

Additional copies of this form will be furnished upon request to the Federal Railroad Administration, Office of Safety, Washington, D.C. 20590.



US Department of Transportation
Federal Railroad Administration

LOCOMOTIVE INSPECTION AND REPAIR RECORD

In accordance with the Locomotive Inspection Act, 36 State, 913, as amended and the regulations issued pursuant to that Act, the parts and appurtenances of the locomotive unit have been inspected and all defects disclosed by the inspection have been properly repaired.

Starting year 19 _____ Check if new loco. If loco. renumbered give previous no. _____

1. OPERATED BY _____				RR CODE _____		2. OWNED BY (Railroad) _____				RR CODE _____	
3. MODEL NO.	4. LOCO. NO.	5. YR. BUILT	6. PROPELLED BY		7. HORSEPOWER	8. TYPE OF SERVICE: PASSENGER <input type="checkbox"/> ROAD <input type="checkbox"/> YARD <input type="checkbox"/> OTHER <input type="checkbox"/>					
9. STEAM GEN.	GEN. #1. _____		Working Pressure _____			GEN. #2. _____		Working Pressure _____			
10. MAXIMUM PISTON TRAVEL _____ inches			TYPE OF AIR BRAKE _____			11. OUT OF USE CREDIT _____					
12. LAST PERIODIC INSPECTION DATE _____						PLACE _____					

PERIODIC INSPECTIONS

13. DATE MO DAY YR	14. PLACE	15. ITEMS	16. PERSON CONDUCTING	15. ITEMS	16. PERSON CONDUCTING	17. CERTIFIED BY

15.* ITEM CODE: BRAKES RUNNING GEAR CAB EQUIP. MECH. EQUIP. ELECT. EQUIP. STEAM GEN. SAFETY APPL.

TESTS		18. H & H TEST PRESSURE		19. WAIVER PART - 229		20. WAIVER - OTHER	
		21. PERSON CONDUCTING		22. TEST DATE AND PLACE		23. CERTIFIED BY	
TYPE		INTERVAL NOT MORE THAN		PREVIOUS TEST DATE AND PLACE			
METER		368 calendar days					
HAMMER AND HYDRO		736 calendar days					
AIRBRAKE 229.27		368 calendar days					
AIRBRAKE 229.29		NUMBER OF CALENDAR DAYS _____					

Certification of true copy.
I certify that this is a true copy of the inspection and repair record of locomotive no. _____

(Officer-in-charge) DATE

ATTENTION: A false entry on this form is punishable by fine or imprisonment (U.S. Code, Title 18, Sec. 1001).

INSTRUCTIONS

1. **OPERATED BY:** Enter the name and code* of the railroad primarily responsible for operating the locomotive at the time the report is placed in the locomotive. Operator changes, including dates, shall be noted in "Remarks."
2. **OWNER:** Enter the name and code* of the owner. Changes in ownership shall be submitted as final reports.
3. **MODEL NO.:** Enter the original builder's model number.
4. **LOCOMOTIVE NO.:** Enter only the locomotive number. Include letters only if they are part of the locomotive markings. If the locomotive number is changed, include the information at the top of the form.
5. **YEAR BUILT:** Enter the year the locomotive was built or rebuilt.
6. **PROPELLED BY:** Enter Diesel-Electric (D-E), Electric (E), Mu, Mu Control Cab (MUC), Non-Mu Control Cab (NMUC), Turbo (T), Torque Converter (TC), Other (O).
7. **HORSEPOWER:** Enter horsepower rating.
8. **TYPE OF SERVICE:** Enter type of service the locomotive is assigned to when the report is placed in the locomotive.
9. Enter steam generator number(s) and safe working pressure(s).
10. Enter maximum piston travel. Enter only "Nominal" travel and do not include Manufacturer's Tolerance. Also include type of AIR BRAKE.
11. Enter number of creditable calendar days the locomotive was out-of-use. Less than 30 consecutive calendar days for any out-of-use period may not be counted. Any entry "out-of-use from _____ to _____" shall be made on an inspection line and certified when a locomotive is not in use when an inspection would otherwise be due. If the locomotive is out-of-use at the end of the reporting period, complete the "To" entry with the last day of the period. The entry on the replacement report should then record the "From" as the beginning of the new period.
12. **LAST PERIODIC INSPECTION AND TESTS:** This report covers annual periods (January 1 to December 31). The report of the preceding annual period shall be retained in the locomotive until the first periodic inspection is made after January 1 of each year or until the form is replaced as required by Section 229.23(e). When a new form 6180.49A is placed in the locomotive, enter the last periodic inspection information onto the new form in item 12 and the test information in item 24. Tests that are not applicable should be noted "NA".
INSPECTIONS AND TESTS: Persons making the required tests and periodic inspections shall sign for the items tested or inspected. The employee's supervisor shall certify that the tests and inspections were completed.
TESTS: Where the carrier has chosen to fragment air brake cleaning, repairing and testing required by Sections 229.27 & 29, an air record shall be maintained in the cab of the locomotive.
18. **H&H:** Enter test pressure from the hydrostatic test. If reservoirs are drilled; enter work "Drilled".
CODE*: Carriers shall enter only the code assigned by FRA to their railroad.
19. Any waivers of any type from a requirement of 49CFR Part 229 shall be identified in block No. 19 by its waiver number or by the section number affected. Explanatory information regarding the scope and content of the waiver shall be included under "Remarks".
20. Any waiver from any FRA requirement other than a requirement of 49CFR Part 229 shall be identified in block No. 20 by its waiver number or by the part and section number affected. Explanatory information regarding the scope and content of the waiver shall be included under "Remarks".
21. Under Tests (AIR BRAKE 229.29) Fill in the number of calendar days subject air brake equipment is subjected to cleaning, repairing and testing.
REPAIRS: Defects not properly repaired.

NOISE: Enter any noise tests or related information in accordance with 49 CFR 210.31.

REMARKS: The carriers should enter under "Remarks" any other clarifying or explanatory information.

RAIL EQUIPMENT ACCIDENT/INCIDENT REPORT

1. NAME OF REPORTING RAILROAD <div style="text-align: right;">Amtrak Autotrain</div>		1a. Alphabetic Code	1b. Railroad Accident/Incident No.
2. NAME OF OTHER RAILROAD INVOLVED IN TRAIN ACCIDENT/INCIDENT		2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. NAME OF RAILROAD RESPONSIBLE FOR TRACK MAINTENANCE (single entry)		3a. Alphabetic Code	3b. Railroad Accident/Incident No.
4. U. S. DOT-AAR GRADE CROSSING IDENTIFICATION NUMBER		5. DATE OF ACCIDENT/INCIDENT month day year	6. TIME OF ACCIDENT/INCIDENT am <input type="checkbox"/> pm <input type="checkbox"/>
7. TYPE OF ACCIDENT/INCIDENT (enter number in code box, single entry) CODE			
1. Derailment 3. Rear end collision 5. Raking collision 7. Rail-Hwy crossing 9. Obstruction 11. Fire or violent rupture 12. Other (specify) 2. Head on collision 4. Side collision 6. Broken train collision 8. RR grade crossing 10. Explosion-Detonation			

HAZARDOUS MATERIALS (number of)

8. CARS CARRYING	9. CARS DAMAGED OR DERAILED	10. CARS WHICH RELEASED HAZ. MAT.	11. PEOPLE EVACUATED (est.)
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LOCATION

12. DIVISION	13. NEAREST STATION	14. MILEPOST (to nearest tenth)	15. STATE (two letter code) CODE
--------------	---------------------	---------------------------------	---

ENVIRONMENTAL CONDITIONS

16. TEMPERATURE (specify if minus) °F	17. VISIBILITY (single entry) CODE 1. Dawn 3. Dusk 2. Day 4. Dark	18. WEATHER (single entry) CODE 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow
---------------------------------------	--	---

OPERATIONAL DATA

19. METHOD (place X in appropriate box(es))		20. SPEED (recorded speed, if available) Est. MPH Recorded MPH		21. TRAIN NUMBER		22. TIME TABLE DIRECTION 1. North 2. South 3. East 4. West CODE		
1 <input type="checkbox"/> Manual block	4 <input type="checkbox"/> Automatic block	7 <input type="checkbox"/> Yard rules	10 <input type="checkbox"/> Auto. train control	13 <input type="checkbox"/> Other (specify)	2 <input type="checkbox"/> Interlocking	5 <input type="checkbox"/> Traffic control	8 <input type="checkbox"/> Time table	11 <input type="checkbox"/> Verbal permission
3 <input type="checkbox"/> Cab signal	6 <input type="checkbox"/> Auto. train stop	9 <input type="checkbox"/> Radio	12 <input type="checkbox"/> Train orders					

EQUIPMENT

23. TRAILING TONS (gross tonnage, excluding power units)		24. TYPE OF EQUIPMENT CONSIST (single entry) CODE 1. Freight train 3. Mixed train 5. Single car 7. Yard/switching 2. Passenger train 4. Work train 6. Cut of cars 8. Light loco(s)		25. WAS THE EQUIPMENT IDENTIFIED IN ITEM 24 UNATTENDED? CODE 1. Yes 2. No						
26. TRACK NUMBER OR NAME		27. FRA TRACK CLASSIFICATION		28. ANNUAL TRACK DENSITY (gross tons in millions)		29. TYPE OF TRACK CODE 1. Main 3. Siding 2. Yard 4. Industry				
30. PRINCIPLE CAR/UNIT		30a. Initial and Number		30b. Position in Train		30c. Loaded (yes or no)				
(1) First Involved (derailed, struck, striking, etc.)										
(2) Causing (mechanical failures)										
31. LOCOMOTIVE UNITS (no. of)		a. Head End	Mid Train	Rear End		32. CARS (no. of)				
		b. Manual	c. Remote	d. Manual	e. Remote	a. Freight	b. Pass.	c. Freight	d. Pass.	e. Caboose
(1) Total in Train						(1) Total in Equipment Consist				
(2) Total Derailed						(2) Total Derailed				

PROPERTY DAMAGE (estimated cost, including labor, to repair or replace)

33. EQUIPMENT DAMAGE (to be reported for this equipment consist only) \$	34. TRACK, SIGNAL, WAY AND STRUCTURES DAMAGE (to be reported by railroad in item 3 only) \$
--	---

ACCIDENT/INCIDENT CAUSE CODE

35. PRIMARY CAUSE CODE	36. CONTRIBUTING CAUSE CODE	37. If no code available, explain cause.
---	--	--

CASUALTIES

38. NUMBER OF PERSONS INJURED	39. ESTIMATED TOTAL DAYS DISABILITY	40. NUMBER OF FATALITIES
-------------------------------	-------------------------------------	--------------------------

CREW (no. of)

41. ENGINEERS	42. FIREMEN	43. CONDUCTORS	44. BRAKEMEN	45. ENGINEER Hrs: Mins:		46. CONDUCTOR Hrs: Mins:	
---------------	-------------	----------------	--------------	---	--	--	--

HOURS ON DUTY

TYPED NAME AND TITLE		48. SIGNATURE	49. DATE
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50. NARRATIVE DESCRIPTION — Describe the cause, nature and circumstances of accident/incident

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION
RAILROAD INJURY AND ILLNESS SUMMARY

*Form Approved
OMB No. 04-R4009*

1. NAME OF REPORTING RAILROAD	2. ALPHABETIC CODE	3. REPORT MONTH & YEAR	4. STATE ALPHABETIC CODE	5. COUNTY
NAME OF REPORTING OFFICER			OFFICIAL TITLE	
ADDRESS			TELEPHONE (Area Code) (Number)	

6. I, _____, being first duly sworn, do say upon my oath that I am _____, of the railroad aforesaid and as such officer of the said railroad it is my duty to have supervision over the record of reportable incidents arising from the operation of the said railroad, and that I have caused to be compiled from the said record and to be carefully examined the annexed report of such incidents occurring during the month named at the head of this sheet; and that the said report is true and complete to the best of my knowledge and belief.

Subscribed and sworn to before me, a notary public in and for the State and County aforesaid, this _____ day of _____, 19 _____.

(Use an impression seal) _____
[L.S] _____
_____ (Notary Public) _____ (Signature of affiant)

7. MILES RUN DURING MONTH			
A. LOCOMOTIVE TRAIN MILES	B. MOTOR TRAIN MILES	C. YARD SWITCHING MILES	D. TOTAL

8. A. EMPLOYEE MANHOURS WORKED	B. PASSENGER MILES OPERATED	C. NUMBER OF PASSENGERS TRANSPORTED
TOTAL TRAIN ACCIDENTS	TOTAL FRA FORMS 6180-55A	TOTAL FRA FORMS 6180-54
	TOTAL FRA FORMS 6180-54	TOTAL FRA FORMS 6180-57

SECTION A—RECAPITULATION OF ALL CASUALTIES INCLUDING HIGHWAY GRADE CROSSING ACCIDENT/INCIDENT CASUALTIES								CLASS OF PERSON FOR SECTIONS A AND B	SECTION B—RECAPITULATION OF ALL HIGHWAY GRADE CROSSING ACCIDENT/INCIDENT CASUALTIES							
TRAIN ACCIDENTS		TRAIN INCIDENTS		NONTRAIN INCIDENTS		TOTAL			TRAIN ACCIDENTS		TRAIN INCIDENTS		NONTRAIN INCIDENTS		TOTAL	
Kld	Inj	Kld	Inj	Kld	Inj	Kld	Inj		Kld	Inj	Kld	Inj	Kld	Inj	Kld	Inj
								1. Employees on duty								
								2. Employees not on duty								
								3. Passengers on trains								
								4. Other nontrespassers								
								5. Trespassers (all classes)								
								6. Contractor Employees								
								7. GRAND TOTAL								

SECTION C—MEMORANDUM—SUBSEQUENT FATALITIES DEVELOPED FROM REPORTED CASUALTIES					
LINE NO.	ACCIDENT/INCIDENT NUMBER	TYPE PERSON OR JOB CODE	DATE OF INJURY	DATE OF DEATH	STATE
1.					
4.					

FORM FRA F 6180-55 (8-76) REPLACES FORM FRA F 6180-55 (12-74) WHICH IS OBSOLETE.

This report is required by law (45 USC 40). Failure to report can result in the imposition of civil penalties.

DEFINITIONS

A *train accident* is any collision, derailment, fire, explosion, act of God, or any other event involving operation of railroad on-track equipment (standing or moving) which results in more than \$2900 in damages to railroad on-track equipment, signals, track, track structures, and roadbed.

A *train incident* is any event arising from the movement of an equipment consist, which results in a reportable death, injury or illness, but not more than \$2900 in damages to railroad on-track equipment, signals, track, track structures, and roadbed.

A *nontrain incident* is any event arising from the operation of a railroad, but not from the movement of an equipment consist, which results in a reportable death, injury or illness.

A *reportable death, injury, or illness* is any event arising from the operation of a railroad which results in:

- (a) death of one or more persons;
- (b) injury to one or more persons, other than railroad employees, that requires medical treatment;
- (c) Injury to one or more employees that requires medical treatment or results in restriction of work or motion for one or more days, one or more lost workdays, transfer to another job, termination of employment, or loss of consciousness; or
- (d) any occupational illness of a railroad employee, as diagnosed by a physician.

An *equipment consist* is a train, locomotive(s), cut of cars, or any single car not coupled to another car or locomotive.

A *train* is defined as a locomotive unit or locomotive units coupled, with or without cars and with or without markers displayed. Included in this definition are those trains consisting entirely of self-propelled units designed to carry passenger and/or freight traffic.

A *locomotive* is a self-propelled unit of equipment designed for moving other equipment and includes a self-propelled unit designed to carry freight and/or passenger traffic. For rapid transit and commuter reporting, any powered unit, including a married pair, will be identified as a locomotive.

A *car* is

- (a) any unit of equipment designed to be hauled by locomotives, or
- (b) any unit of on-track work equipment such as a track motorcar, a highway-rail car, on-track push car, on-track crane, on-track ballast tamping machine, etc.



U.S. Department of Transportation
Federal Railroad Administration

RAILROAD INJURY AND ILLNESS SUMMARY (CONTINUATION SHEET)

FORM APPROVED
OMB NO. 2130-0500

SHEET ____ OF ____

1. NAME OF REPORTING RAILROAD	2. ALPHABETIC CODE	3. REPORT MONTH
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9.

CASUALTIES (Cont.)

a. ACCIDENT/ INCIDENT NUMBER	b. TYPE PERSON OR JOB CODE	c. INJURY OR ILLNESS CODE	d. OCCURRENCE CODE	e. AGE	f. NUMBER OF DAYS AWAY FROM WORK	g. NUMBER OF DAYS OF RESTRICTED ACTIVITY	h. CASES WITH- OUT LOST WORK DAYS	i. STATE ALPHABETIC CODE

**ANNUAL RAILROAD REPORT
OF
MANHOURS BY STATE**

1. REPORTING RAILROAD	ALPHABETIC CODE	2. REPORT YEAR
-----------------------	-----------------	----------------

3. ANNUAL MANHOURS							
A.	STATE	B. CODE	C. M/HRS.	A.	STATE	B. CODE	C. M/HRS.
(1)	ALABAMA	AL		(26)	MONTANA	MT	
(2)	ALASKA	AK		(27)	NEBRASKA	NE	
(3)	ARIZONA	AZ		(28)	NEVADA	NV	
(4)	ARKANSAS	AR		(29)	NEW HAMPSHIRE	NH	
(5)	CALIFORNIA	CA		(30)	NEW JERSEY	NJ	
(6)	COLORADO	CO		(31)	NEW MEXICO	NM	
(7)	CONNECTICUT	CT		(32)	NEW YORK	NY	
(8)	DELAWARE	DE		(33)	NORTH CAROLINA	NC	
(9)	DISTRICT OF COLUMBIA	DC		(34)	NORTH DAKOTA	ND	
(10)	FLORIDA	FL		(35)	OHIO	OH	
(11)	GEORGIA	GA		(36)	OKLAHOMA	OK	
(12)	IDAHO	ID		(37)	OREGON	OR	
(13)	ILLINOIS	IL		(38)	PENNSYLVANIA	PA	
(14)	INDIANA	IN		(39)	RHODE ISLAND	RI	
(15)	IOWA	IA		(40)	SOUTH CAROLINA	SC	
(16)	KANSAS	KS		(41)	SOUTH DAKOTA	SD	
(17)	KENTUCKY	KY		(42)	TENNESSEE	TN	
(18)	LOUISIANA	LA		(43)	TEXAS	TX	
(19)	MAINE	ME		(44)	UTAH	UT	
(20)	MARYLAND	MD		(45)	VERMONT	VT	
(21)	MASSACHUSETTS	MA		(46)	VIRGINIA	VA	
(22)	MICHIGAN	MI		(47)	WASHINGTON	WA	
(23)	MINNESOTA	MN		(48)	WEST VIRGINIA	WV	
(24)	MISSISSIPPI	MS		(49)	WISCONSIN	WI	
(25)	MISSOURI	MO		(50)	WYOMING	WY	

4. TYPED NAME AND TITLE	5. SIGNATURE	6. DATE
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RAIL-HIGHWAY GRADE CROSSING ACCIDENT/INCIDENT REPORT

1. NAME OF REPORTING RAILROAD 2. NAME OF OTHER RAILROAD INVOLVED IN TRAIN ACCIDENT/INCIDENT 3. NAME OF RAILROAD RESPONSIBLE FOR TRACK MAINTENANCE <i>(single entry)</i> 4. U. S. DOT-AAR GRADE CROSSING IDENTIFICATION NUMBER	Amtrak Autotrain	1a. Alphabetic Code 2a. Alphabetic Code 3a. Alphabetic Code 5. DATE OF ACCIDENT/INCIDENT month day year	1b. Railroad Accident/Incident No. 2b. Railroad Accident/Incident No. 3b. Railroad Accident/Incident No. 6. TIME OF ACCIDENT/INCIDENT am <input type="checkbox"/> pm <input type="checkbox"/>
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LOCATION

7. NEAREST RAILROAD STATION	8. COUNTY	9. STATE <i>(two letter code)</i>	CODE
10. CITY <i>(if in a city)</i>	11. HIGHWAY NAME OR NUMBER <i>(if private crossing, so state)</i>		

ACCIDENT/INCIDENT SITUATION

HIGHWAY USER INVOLVED			RAILROAD EQUIPMENT INVOLVED		
12. TYPE	3. Truck-Trailer	6. Motorcycle	16. EQUIPMENT	3. Train <i>(standing)</i>	6. Light loco(s) <i>(moving)</i>
1. Auto	4. Bus	7. Pedestrian	1. Train <i>(units pulling)</i>	4. Car(s) <i>(moving)</i>	7. Light loco(s) <i>(standing)</i>
2. Truck	5. School Bus	8. Other <i>(specify)</i>	2. Train <i>(units pushing)</i>	5. Car(s) <i>(standing)</i>	8. Other <i>(specify)</i>
13. SPEED <i>(estimated mph at impact)</i>	14. DIRECTION <i>(geographical)</i>	17. POSITION OF CAR/UNIT IN TRAIN	18. CIRCUMSTANCE		
	1. North 3. East 2. South 4. West		1. Train struck highway user 2. Train struck by highway user		
15. POSITION	1. Stalled on crossing	2. Stopped on crossing	3. Moving over crossing	19. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials?	
				1. Highway user	2. Rail equipment
				3. Both	4. Neither

ENVIRONMENT

20. TEMPERATURE <i>(specify, if minus)</i>	21. VISIBILITY <i>(single entry)</i>	CODE	22. WEATHER <i>(single entry)</i>	CODE
°F	1. Dawn 3. Dusk 2. Day 4. Dark		1. Clear 3. Rain 5. Sleet 2. Cloudy 4. Fog 6. Snow	

TRAIN AND TRACK

23. TYPE OF TRAIN	24. TRACK TYPE USED BY TRAIN INVOLVED	CODE	CODE
1. Freight 3. Mixed 5. Yard/Switching 2. Passenger 4. Work 6. Light Locomotive(s)	1. Main 3. Siding 2. Yard 4. Industry		
25. TRACK NUMBER OR NAME	26. FRA TRACK CLASSIFICATION	27. NUMBER OF LOCOMOTIVE UNITS	
28. NUMBER OF CARS	29. TRAIN SPEED <i>(recorded speed, if available)</i>	Est	30. TIME TABLE DIRECTION
	MPH Recorded		1. North 3. East 2. South 4. West

CROSSING WARNING

31. TYPE	32. SIGNALLED CROSSING WARNING	CODE	CODE
<i>(place X in appropriate box(es))</i>	Was the signaled crossing warning identified in item 31 operating?		1. Yes 2. No
1. <input type="checkbox"/> Gates	5. <input type="checkbox"/> Hwy. Traffic Signals	9. <input type="checkbox"/> Watchman	
2. <input type="checkbox"/> Cantilever FLS	6. <input type="checkbox"/> Audible	10. <input type="checkbox"/> Flagged by crew	
3. <input type="checkbox"/> Standard FLS	7. <input type="checkbox"/> Crossbucks	11. <input type="checkbox"/> Other <i>(specify)</i>	
4. <input type="checkbox"/> Wig Wags	8. <input type="checkbox"/> Stop Signs	12. <input type="checkbox"/> None	
33. LOCATION OF WARNING	34. CROSSING WARNING INTERCONNECTED WITH HIGHWAY SIGNALS	35. CROSSING ILLUMINATED BY STREET LIGHTS OR SPECIAL LIGHTS	
1. Both sides 2. Side of vehicle approach 3. Opposite side of vehicle approach	1. Yes 2. No 3. Unknown	1. Yes 2. No 3. Unknown	

MOTORIST ACTION

36. MOTORIST PASSED STANDING HIGHWAY VEHICLE	CODE	37. MOTORIST DROVE BEHIND OR IN FRONT OF TRAIN AND STRUCK OR WAS STRUCK BY SECOND TRAIN	CODE
1. Yes 2. No 3. Unknown		1. Yes 2. No 3. Unknown	
38. MOTORIST	39. VIEW OF TRACK OBSCURED BY <i>(primary obstruction)</i>		
1. Drove around or thru the gate	2. Stopped and then proceeded	3. Did not stop	4. Other <i>(specify)</i>
			5. Unknown
	3. Passing train	5. Vegetation	7. Other <i>(specify)</i>
	4. Topography	6. Highway vehicles	8. Not obstructed

HIGHWAY VEHICLE PROPERTY DAMAGE/CASUALTIES

40. HIGHWAY VEHICLE PROPERTY DAMAGE <i>(est. dollar damage)</i>	41. DRIVER WAS	CODE	42. WAS DRIVER IN THE VEHICLE?	CODE
	1. Killed 2. Injured 3. Uninjured		1. Yes 2. No	
43. TOTAL NUMBER OF OCCUPANTS KILLED	44. TOTAL NUMBER OF OCCUPANTS INJURED	45. TOTAL NUMBER OF OCCUPANTS <i>(include driver)</i>		
46. IS A RAIL EQUIPMENT ACCIDENT/INCIDENT REPORT BEING FILED? 1. Yes 2. No				

47. TYPED NAME AND TITLE	48. SIGNATURE	49. DATE

NOTICE TO RAILROAD EMPLOYEE INVOLVED IN RAIL EQUIPMENT ACCIDENT/INCIDENT ATTRIBUTED TO EMPLOYEE HUMAN FACTOR;

EMPLOYEE STATEMENT SUPPLEMENTING RAILROAD ACCIDENT REPORT

OMB No. 2130-0500

PART I - NOTICE TO RAILROAD EMPLOYEE INVOLVED IN RAIL EQUIPMENT ACCIDENT/INCIDENT ATTRIBUTED TO EMPLOYEE HUMAN FACTOR (To be Completed by Reporting Railroad)			
Name of Reporting Railroad	Date of Accident/Incident ____/____/____ mo day year	Accident/Incident No.	Location of Accident/Incident
Check the Cause Code(s) Applicable to this Employee.	Cause Codes listed on Accident/Incident Report. (State meaning of each cause code as stated in the "FRA Guide for Preparing Accident/Incident Reports.")		
<input type="checkbox"/> Primary Cause	_____ Cause Code No.	_____ Meaning	
<input type="checkbox"/> Contributing Cause	_____ Cause Code No.	_____ Meaning	
Employee's Name (First, middle, last) Job Title on Date of Accident		Name of Employing Railroad on Date of Accident/Incident	
Employee's Home Address or RFD No.			
Street (include apt. no., if any) City State Zip			
NOTICE TO RAILROAD EMPLOYEE			
This Notice is required by safety regulations of the Federal Railroad Administration (FRA), U.S. Department of Transportation.			
This railroad, in submitting its reports to FRA on the accident described above, has alleged that you committed an act or omission or were in a physical condition that was either the primary cause or a contributing cause of the accident. (For the railroad's specific allegations, please see above on this form and the reports themselves, which are enclosed or attached.)			
Under FRA's safety regulations (published in Title 49, Section 225.12 of the Code of Federal Regulations), you may submit a statement to FRA, with a copy to this railroad, commenting on the railroad's allegations and explaining any factors that you believe caused or contributed to the accident. YOU ARE NOT REQUIRED TO SUBMIT THIS STATEMENT SUPPLEMENTING THE RAILROAD'S ACCIDENT REPORT; HOWEVER, IF YOU CHOOSE TO DO SO, YOU MUST FOLLOW THE INSTRUCTIONS PRINTED ON THE REVERSE OF THIS FORM.			
Name of Railroad Representative	Signature of Railroad Representative	Date Signed	Date Mailed or Hand Delivered to Employee
Name and address of railroad representative to whom form is to be returned:			

PART II - EMPLOYEE STATEMENT SUPPLEMENTING RAILROAD ACCIDENT REPORT (To be Completed by Notified Employee, if Employee Wishes to File this Supplement. See instructions on reverse of this form.)	
_____ _____ _____ _____ _____ _____ _____ _____	
ATTENTION: THIS STATEMENT SUPPLEMENTING RAILROAD ACCIDENT/INCIDENT REPORT MUST BE SIGNED. (Otherwise it will be returned to the employee.)	
NOTE: Willful false statements can result in the imposition of civil penalties. Knowing and willful false statements can result in the imposition of criminal penalties.	
I have carefully read this statement and confirm that it is true and correct to the best of my knowledge and belief.	
_____ Signature of Employee	_____ Date Signed
Date Mailed/Hand Delivered to FRA	Date Mailed/Hand Delivered to Railroad that Issued this Notice
Employee's Home Telephone Number ()	Employee's Work Telephone Number ()
Home address, if different from address shown in Part I above	
NOTE: This Notice and Employee Supplement under 49 CFR 225.12 are part of the reporting railroad's accident report to FRA pursuant to the Accident Reports Act and, as such, shall not be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report . . . 45 U.S.C. 41. See 49 CFR 225.7 (b).	

PART OF FRA FORM F 6180.78

INSTRUCTIONS TO NOTIFIED RAILROAD EMPLOYEE ON COMPLETING PART II OF THIS FORM,
"EMPLOYEE STATEMENT SUPPLEMENTING RAILROAD ACCIDENT REPORT"

1. Please read all of these instructions before completing the form.
2. If you wish to do so, please submit an Employee Statement Supplementing Railroad Accident Report (Supplement) concerning the accident described in Part I of this form. Nonsubmission of a Supplement does not constitute consent to any of the railroad's allegations.
3. If you choose to submit a Supplement, you must send a copy to the railroad shown in Part I as the "reporting railroad." (If more than one railroad reported this accident to the Federal Railroad Administration, you may receive more than one Notice. A Supplement may be submitted in response to each Notice.)
4. Supplements become part of the railroad's accident report to the Federal Railroad Administration (FRA), U. S. Department of Transportation, and are available through the Freedom of Information Act to railroads and the general public to the same extent as other government records. See 49 CFR Part 7 and 225.7. The reporting railroad is required to read your Supplement and determine, in light of your Supplement, whether the railroad's report(s) to FRA concerning the accident should be revised. If you wish to submit confidential information to the Federal Railroad Administration, this form is not to be used to submit it. Instead, you should use another means of communication such as a confidential letter addressed to your collective bargaining representative, if any, or to the Federal Railroad Administration, Office of Safety, Office of Safety Enforcement, 400 Seventh Street, S. W., Washington, D. C. 20590. The confidential letter should include the name of the "reporting railroad," the date and place of the accident, and the "rail equipment accident/incident number." See Part I of this form.
5. Print or type. If more room is needed, attach one or more additional pieces of paper.
6. FRA advises preparing a rough draft before filling in the Supplement form.
7. Please be aware that willful false statements can result in the imposition of civil penalties. Knowing and willful false statements can result in the imposition of criminal penalties.
8. Relevant supporting documents and photographs may also be attached.
9. After rereading the Notice to Railroad Employee (Part I of this form) and reading its attachments (the Rail Equipment Accident/Incident Report and Employee Human Factor Attachment) -
 - a. State the item number (for example, Item No. 30b for "Position in Train") of any item on the Rail Equipment Accident/Incident Report with which you disagree or which you question, and state what you believe to be the correct information.
 - b. If not already discussed, state the item number of any item in Part I of the Notice with which you disagree or which you question, and state what you believe to be the correct information.
 - c. If not already discussed, state the item number of any item in the Employee Human Factor Attachment with which you disagree or which you question, and state what you believe to be the correct information.
 - d. Comment as clearly and concisely as you can on the railroad's allegations concerning your role in the accident and explain any factors that you believe caused or contributed to the accident.
10. Sign and date the Supplement. Otherwise it will be returned to you.
11. Attach one copy of the railroad's Rail Equipment Accident/Incident Report and Employee Human Factor Attachment on this accident.
12. Note the number of copies of this form and any attachments to be made:

Original - to FRA
1 copy - to railroad
1 copy - for your records

(FRA suggests that you make and keep a copy of your Supplement and any other supporting material submitted with it, including a copy of the railroad's reports.)
13. Fill in the date of mailing on the original and each copy. Mail the original of the entire form (Parts I and II), with one copy of the railroad's Rail Equipment Accident/Incident Report and Employee Human Factor Attachment on this accident, continuation pages (if any), and any other supporting documents, by first class mail, to the following:

Federal Railroad Administration
Office of Safety
Office of Safety Analysis (RRS-22)
400 Seventh Street, S.W.
Washington, D.C. 20590

Also, mail a copy of the same, by first class mail, to the railroad representative listed at the end of Part I of this form. You must pay the postage for each.
14. The time limit for mailing your Supplement is 35 days from the date that the Notice (Part I of this form) was mailed or hand delivered to you. Exceptions will be made if you state a good reason for the delay. Supplements submitted late should be accompanied by a letter of explanation; however, there is no penalty for filing a Supplement late.

PAPERWORK REDUCTION ACT STATEMENT

Public reporting burden for this collection of information is estimated to average 15 minutes for completing Part I and 2 hours for completing Part II. These estimates include the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Office of Safety Analysis, RRS-20, Federal Railroad Administration, 400 7th Street, S.W., Washington, D.C. 20590; and to the Regulatory Policy Branch (OMB No. 2130-0500), Office of Management and Budget, New Executive Office Bldg., 726 Jackson Place, N.W., Washington, D.C. 20530.

EMPLOYEE HUMAN FACTOR ATTACHMENT

OMB No. 2130-0500

Name of Reporting Railroad	Railroad Accident/Incident No. (Block 1b, FRA F 6180.54)	Date of Accident/Incident (mo/day/year)
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The railroad has determined that (check only one)

- a. One or more railroad employees committed an act or omission or were in a physical condition that was a primary or a contributing cause of the accident/incident.

- b. Either no railroad employee committed an act or omission or was in a physical condition that was a primary or a contributing cause of the accident/incident or it is uncertain whether any person who was a railroad employee committed an act or omission or was in a physical condition that was a primary or a contributing cause of the accident/incident.

If Item "b" above was checked, go to last line of form. If Item "a" above was checked, complete the following:

The railroad has identified: (check only one)

- 1. All of the railroad employees who committed an act or omission or were in a physical condition that was a primary or contributing cause of the accident/incident.

- 2. Some, but not all, of the railroad employees who committed an act or omission or were in a physical condition that was a primary or contributing cause of the accident/incident.

- 3. None of the railroad employees who committed an act or omission or was in a physical condition that was a primary or contributing cause of the accident/incident.

If Item "3" above was checked, go to last line of form.

If Item "1" or "2" above was checked, complete the following for each employee whom the railroad has identified as having committed an act or omission or having been in a physical condition that was a primary or contributing cause of the accident/incident: (Attach additional pages if more room is needed.)

Name of Railroad Employee (last, first, middle)	Job Title	Railroad Code of Employing Railroad	Cause Code(s) Applicable to this Employee

Briefly describe the employee's act, omission or physical condition that was a primary or a contributing cause of this accident/incident. The meanings of most cause codes are already stated in the "FRA Guide for Preparing Accident/Incident Reports." Briefly expand further, if information is not already stated in the narrative section of the Rail Equipment Accident/Incident Report.

Did this employee die as a result of the accident? Yes No

Typed Name and Title	Signature	Date

**Instructions on Completing Form FRA F 6180.81,
"Employee Human Factor Attachment"**

This form should be completed only when a railroad, in reporting a rail equipment accident/incident to FRA, assigns any of the cause codes listed under "Train Operation - Human Factors" in the "FRA Guide for Preparing Accident/Incident Reports." except Cause Code 506, as the primary cause or a contributing cause of the rail equipment accident/incident.

Note on Notices to Railroad Employees Involved in Rail Equipment Accidents/Incidents:

Part I of FRA's Form FRA F 6180.78, "Notice to Railroad Employee Involved in Rail Equipment Accident/Incident Attributed to Employee Human Factor" ("Notice"), must be completed and the entire form (Parts I and II) forwarded to each employee listed in the Employee Human Factor Attachment as causing or contributing to the accident, with certain exceptions. The railroad's Rail Equipment Accident/Incident Report and Employee Human Factor Attachment must not be delayed in order to complete the Notice.

A Notice for an employee must not be sent if that employee has died as a result of the accident. A Notice for an employee is not required (and is not recommended) if the employee has died of whatever causes by the time that the Notice is ready to be sent.

A Notice for an employee must be sent within 45 days from the end of the month in which the accident/incident occurred, unless (i) the employee has died by the time that the Notice is ready to be sent or (ii) the reporting railroad, in its reasonable discretion, believes that notification of the employee should be deferred for a time on medical grounds.

PAPERWORK REDUCTION ACT STATEMENT

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Office of Safety Analysis, RRS-20, Federal Railroad Administration, 400 7th Street, S.W., Washington, D.C. 20590; and to the Regulatory Policy Branch (OMB No. 2130-0500), Office of Management and Budget, New Executive Office Bldg., 726 Jackson Place, N.W., Washington, D.C. 20530.

*U.S. GPO:1990-518-226/20292

HIGHWAY-RAIL GRADE CROSSING WARNING SYSTEM FAILURE REPORT

OMB Approval No.: 2130-0534

railroad shall submit a report of each failure of a highway-rail grade crossing warning device. Each activation failure shall be reported to FRA within 15 days after the failure occurs. Each false activation shall be reported within 30 days after the expiration of the month in which the failure occurred. Copies of this form may be obtained from the Federal Railroad Administration, Office of Safety, 400 7th Street, S.W., Washington, D.C. 20590.

A false activation means the activation of a highway-rail grade crossing warning system caused by a condition that requires correction or repair of the grade crossing warning system. (This failure indicates to the motorist that it is not safe to cross the railroad tracks when, in fact, it is safe to do so.)

An activation failure means the failure of an active highway-rail grade crossing warning system to indicate the approach of a train at least 20 seconds prior to the train's arrival at the crossing, or to indicate the presence of a train occupying the crossing, unless the crossing is provided with an alternative means of active warning to highway users of approaching trains. (This failure indicates to the motorist that it is safe to proceed across the railroad tracks when, in fact, it is not safe to do so.)

A train means one or more locomotives, with or without cars.

Mail To: Federal Railroad Administration Office of Safety 400 7th Street, S.W. Washington, D.C. 20590	Name of Railroad	RR Code
	Region/Division (Optional)	
	Reporting Employee (Signature/Title)	Date Signed
	DOT/AAR Crossing Number	

CLASSIFICATION

Current Active Warning Device (Check all that apply)	Type of Failure (check one) (State nature and cause below)
1 <input checked="" type="checkbox"/> Gates 2 <input type="checkbox"/> Cantilevered Flashing Lights 3 <input type="checkbox"/> Flashing Lights 4 <input type="checkbox"/> Wig Wags 5 <input type="checkbox"/> Hwy. Traffic Signals 6 <input type="checkbox"/> Bell 7 <input type="checkbox"/> Other (Describe) _____	1 <input type="checkbox"/> Activation Failure False Activation 2 <input type="checkbox"/> Continuous 3 <input type="checkbox"/> Intermittent

LOCATION

Street/Road	County	City	State	RR Milepost
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CORRECTIVE ACTION

Failure Reported/Discovered	Repairs Completed
Date (mm/dd/yy) _____ Time _____ <div style="text-align: right;"> <input type="checkbox"/> AM <input type="checkbox"/> PM </div>	Date (mm/dd/yy) _____ Time _____ <div style="text-align: right;"> <input type="checkbox"/> AM <input type="checkbox"/> PM </div>

Nature and Cause of failure and corrective action taken: (Note temperature and weather conditions, if appropriate.)

GRADE CROSSING SIGNAL SYSTEM INFORMATION

Name of Railroad		RR Code	Page _____ of _____	
T/AAR Crossing Number	Railroad Division (Optional)	Railroad Subdivision (Optional)	Railroad Branch (Optional)	
Milepost or Spur Designation	Street Name or Highway Number	County	State	Total No. of Tracks
Current Active Warning Devices (check all that apply)		Train Speeds (Optional)		
1 <input type="checkbox"/> Gates 2 <input type="checkbox"/> Cantilever Flashing Lights 3 <input type="checkbox"/> Flashing Lights 4 <input type="checkbox"/> WigWags 5 <input type="checkbox"/> Hwy. Traffic Signals 6 <input type="checkbox"/> Bell 7 <input type="checkbox"/> Other (Describe) _____		Maximum Time Table Speed: _____ Typical Speed Range Over Crossing: From _____ to _____		

For each track approach (i.e., each track has two approaches), complete the following:

Track Identifications (Names and/or Numbers)	Number of Tracks with Identical Approach Configuration	Is there an Island Circuit? <input type="checkbox"/> Yes <input type="checkbox"/> No
APPROACH A		
Control Circuit Code (Codes listed on back)	If Code "H" or "J" was used describe:	
Design Length from Outer Limit to Crossing, in Feet (Optional)	Service Date (mm/dd/yy)	
<p>APPROACH B: If Approach B information is identical to Approach A, check here _____ and skip (leave blank) remainder of Approach B.</p> <p>If Approach B information is different than Approach A, circle time table direction of Approach B and fill in Approach B information.</p> <p style="text-align: center;"> <input type="checkbox"/> Northbound <input type="checkbox"/> Southbound <input type="checkbox"/> Eastbound <input type="checkbox"/> Westbound </p>		
Control Circuit Code (Codes listed on back)	If Code "H" or "J" was used, describe:	
Design Length from Outer Limit to Crossing, in Feet (Optional)	Service Date (mm/dd/yy)	

Track Identifications (Names and/or Numbers)	Number of Tracks with Identical Approach Configuration	Is there an Island Circuit? <input type="checkbox"/> Yes <input type="checkbox"/> No
APPROACH A		
Control Circuit Code (Codes listed on back)	If Code "H" or "J" was used, describe:	
Design Length from Outer Limit to Crossing, in Feet (Optional)	Service Date (mm/dd/yy)	
<p>APPROACH B: If Approach B information is identical to Approach A, check here _____ and skip (leave blank) remainder of Approach B.</p> <p>If Approach B information is different than Approach A, circle time table direction of Approach B and fill in Approach B information.</p> <p style="text-align: center;"> <input type="checkbox"/> Northbound <input type="checkbox"/> Southbound <input type="checkbox"/> Eastbound <input type="checkbox"/> Westbound </p>		
Control Circuit Code (Codes listed on back)	If Code "H" or "J" was used describe:	
Design Length from Outer Limit to Crossing, in Feet (Optional)	Service Date (mm/dd/yy)	

TRACK CIRCUIT CODES
for
PREDOMINANT TRACK APPROACH

CODE

- A. Conventional Track Circuit
- B. Conventional Track Circuit with Timing Sections
- C. Audio Frequency Overlay Track Circuit (AFO)
- D. AFO with Timing Sections
- E. Motion Sensitive Track Circuit
- F. Constant Warning Time Track Circuit
- G. Manual Operation, e.g., by key
- H. None, explain (e.g., operating rules proscribe approach in this direction on this track; train moves made by special instructions, etc.)
- J. Other, describe (e.g. wheel counters, presence detectors, transducers, etc.)

DEFINITIONS

EACH APPROACH

- Length in Feet - Length of track circuit, from outer limit to crossing, in feet.
(Provision is optional.)
- Service Date - Date the present train detection circuit configuration went into service
(mm/dd/yy if available, or, if estimated, enter only mm/yy or yy).

Upgrade of major component is considered to be a configuration change rather than a replacement. The date of such upgrade should be indicated as "Service Date."

MONTHLY LOCOMOTIVE INSPECTION AND REPAIR REPORT.

Form No. 1.

Locomotive {Number.....
Initial.....

....., 19
..... Company.

In accordance with the act of Congress approved February 17, 1911, as amended March 4, 1915, and the rules and instructions issued in pursuance thereof and approved by the Interstate Commerce Commission, all parts of locomotive No., including the boiler and appurtenances, were inspected on, 19 , at, and all defects disclosed by said inspection have been repaired, except as noted on the back of this report.

- 1. Steam gauges tested and left in good condition on....., 19 .
- 2. Safety valves set to pop at pounds, pounds, pounds on, 19 .
- 3. Were both injectors tested and left in good condition?
- 4. Were steam leaks repaired?
- 5. Condition of brake and signal equipment,
- 6. Condition of draft gear and draw gear,
- 7. Condition of driving gear,
- 8. Condition of running gear,
- 9. Condition of tender,

- 10. Was boiler washed and gauge cocks and water glass cock spindles removed and cocks cleaned?
- 11. Were steam leaks repaired?
- 12. Condition of staybolts and crown stays,
- 13. Number of staybolts and crown stays renewed,
- 14. Condition of flues and firebox sheets,
- 15. Condition of arch and water bar tubes, if used, .. .
- 16. Were fusible plugs removed and cleaned?
- 17. Date of previous hydrostatic test,, 19 .
- 18. Date of removal of caps from flexible staybolts., 19 .

I certify that the above report is correct.

I certify that the above report is correct.

.....
Inspector.

.....
Inspector.

STATE OF..... }
COUNTY OF..... }ss:

Subscribed and sworn to before me this day of 19 , by inspectors of the Company.

.....
Notary Public.

The above work has been performed and the report is approved.

.....
Officer in Charge.

Form No. 2.

Locomotive { Number.....
 { Initials

..... Railroad.

LOCOMOTIVE INSPECTION REPORT.

INSTRUCTIONS.—Each locomotive and tender must be inspected after each trip or day's work and report made on this form, whether needing repairs or not. Proper explanation must be made hereon for failure to repair any defects reported, and the form approved by foreman, before the locomotive is returned to service.

Inspected at time m. Date 19

Repairs needed:

.....
.....
.....
.....
.....

Condition of injectors Water glass
Condition of gauge cocks Brakes
Condition of piston rod and valve stem packing
Safety valve lifts at pounds. Seats at pounds.
Main reservoir pressure, pounds. Brake pipe pressure, pounds.

(Signature)
(Occupation)

The above work has been performed, except as noted, and the report is approved.

.....
Foreman.

NOTE.—Additional items may be added to this form if desired.

ANNUAL LOCOMOTIVE INSPECTION AND REPAIR REPORT

....., 19

..... Company.

Locomotive { Number Initial

In accordance with the act of Congress approved February 17, 1911, as amended March 4, 1915, and the rules and instructions issued in pursuance thereof and approved by the Interstate Commerce Commission all parts of locomotive No., including the boiler and its appurtenances, were inspected on, 19, at, and all defects disclosed by said inspection have been repaired, except as noted on the back of this report.

- 1. Date of previous hydrostatic test,, 19
2. Date of previous removal of caps from flexible staybolts,, 19
3. Date of previous removal of flues,, 19
4. Date of previous removal of all lagging,, 19
5. Hydrostatic test pressure of pounds was applied.
6. Were caps removed from all flexible stay bolts?
7. Were all flues removed? Number removed
8. Condition of interior of barrel,
9. Was all lagging removed?
10. Condition of exterior of barrel,
11. Was boiler entered and inspected?
12. Was boiler washed? Water glass cocks and guage cocks cleaned?
13. Condition of crown stays and staybolts,
14. Condition of sling stays and crown bars,
15. Condition of firebox sheets and flues,
16. Condition of arch tubes, Water bar tubes
17. Condition of throat braces,
18. Condition of back head braces,
19. Condition of front flue sheet braces,
20. Were fusible plugs removed and cleaned?
21. Were steam leaks repaired?

I certify that the above report is correct., Inspector.

- 22. Were steam gauges tested and left in good condition?
23. Safety valves set to pop at pounds, pounds, pounds.
24. Were both injectors tested and left in good condition?
25. Were steam leaks repaired?
26. Hydrostatic test of pounds applied to main reservoirs.
27. Condition of brake and signal equipment,
28. Were drawbar and drawbar pins removed and inspected?
29. Condition of draft gear and draw gear,
30. Condition of driving gear,
31. Condition of running gear,
32. Condition of tender,

I certify that the above report is correct., Inspector.

STATE OF } ss:
COUNTY OF

Subscribed and sworn to before me this day of, 19, by { } inspectors of the Company.

The above work has been performed and the report is approved.

....., Notary Public.
....., Officer in Charge.

Specification Card for Locomotive No. _____

Owned by _____ Railroad Company.

Operated by _____ Railroad Company.

Builder _____
 Builder's No. of boiler _____
 When built _____
 Where built _____
 Type of boiler _____
 Material of boiler shell sheets _____
 Material of rivets _____
 Dome, where located _____
 Grate area in sq. ft. _____
 Height of lowest reading of gauge glass above crown sheet _____
 Height of lowest gauge cock above crown sheet _____
 Water-bar tubes, O. diam. _____ thickness _____
 Arch tubes, O. diam. _____ thickness _____
 Fire tubes, number _____
 " " O. diam. _____ length _____
 Safety valves:

No.	Size	Make	Style

Firebox stay bolts, O. diam. _____ spaced _____ x _____
 Combustion chamber stay bolts, O. diam. _____
 " " " " spaced _____ x _____
 Crown stays, O. diam., top _____ bottom _____
 " " spaced _____ x _____
 Crown-bar rivets, O. diam., top _____ bottom _____
 " " " spaced _____ x _____
 Water space at firebox ring, sides _____
 back _____ front _____
 Width of water space at sides of firebox measured at center line of boiler, front _____ back _____

Shell sheets:
 Front tube _____ thick.
 1st course _____ " _____ I. diam.
 2d " _____ " _____ "
 3d " _____ " _____ "

Mem.: When courses are not cylindrical give inside diameter at each end.

Firebox:
 Thickness of sheets—
 Tube _____ Crown _____ Side _____
 Door _____ Combustion chamber _____
 Inside throat (if tube sheet is in two pieces) _____

External firebox:
 Thickness of sheets—throat _____ back head _____
 Roof _____ sides _____

Dome inside diam. _____
 Thickness of sheet _____ base _____ liner _____

Were you furnished with authentic records of the tests of materials used in boiler? _____

Records on file in the office of the _____
 of the _____ Company
 show that the lowest tensile strength of the sheets in the shell of this boiler is:

1st course _____ pounds per sq. in.
 2d " _____ " " "
 3d " _____ " " "

Is boiler shell circular at all points? _____
 If shell is flattened, state location and amount _____

Are all parts thoroughly stayed? _____

Are dome and other openings sufficiently reinforced? _____

Is boiler equipped with fusible plugs? _____

Make working sketch here or attach drawing of longitudinal and circumferential seams used in shell of boiler, indicating on which courses used, and give calculated efficiency of weakest longitudinal seam.

The maximum stresses at the allowed working pressure were found by calculation to be as follows:

Stay bolts at root of thread.....lbs. per sq. in.	Round and rectangular braces.....lbs. per sq. in.
Stay bolts at reduced section....." " " "	Gusset braces....." " " "
Crown stays or crown-bar rivets at root of thread or smallest section, top.....lbs. per sq. in.	Shearing stress on rivets....." " " "
Crown stays or crown-bar rivets at root of thread or smallest section, bottom.....lbs. per sq. in.	Tension on net section of plate in longitudinal seam of lowest efficiency, pounds per sq. in.....

Dimensions and data taken from locomotive were furnished by

Data upon which above calculations were made were obtained from drawing No.

dated furnished by Company.

.....
Mechanical Engineer.

STATE OF..... }
COUNTY OF..... } ss:

....., being duly sworn says that he is the officer who signed the foregoing specification, that he has satisfied himself of the correctness of the drawings and data used, has verified all of the calculations, and has examined the record of present condition of boiler dated and sworn to by inspector and believes that the design, construction, and condition of boiler No. renders it safe for a working pressure of pounds per square inch.

.....
(Name of affiant)

Subscribed and sworn to before me
this.....day of....., 19

.....
Notary Public.

Approved:

.....

**DEPARTMENT OF TRANSPORTATION
HAZARDOUS MATERIALS INCIDENT REPORT**

Form Approved OMB No. 2137-0039

INSTRUCTIONS: Submit this report in duplicate to the Information Systems Manager, Office of Hazardous Materials Transportation, DHM-63, Research and Special Programs Administration, U.S. Department of Transportation, Washington, D.C. 20590. If space provided for any item is inadequate, complete that item under Section IX, keying to the entry number being completed. Copies of this form, in limited quantities, may be obtained from the Information Systems Manager, Office of Hazardous Materials Transportation. Additional copies in this prescribed format may be reproduced and used, if on the same size and kind of paper.

I. MODE, DATE, AND LOCATION OF INCIDENT				
1. MODE OF TRANSPORTATION: <input type="checkbox"/> AIR <input type="checkbox"/> HIGHWAY <input type="checkbox"/> RAIL <input type="checkbox"/> WATER <input type="checkbox"/> OTHER				
2. DATE AND TIME OF INCIDENT (Use Military Time. e.g. 8:30am = 0830. noon = 1200. 6pm = 1800. midnight = 2400).				
Date: _____ TIME: _____				
3. LOCATION OF INCIDENT (Include airport name in ROUTE/STREET if incident occurs at an airport.)				
CITY: _____		STATE: _____		
COUNTY: _____		ROUTE/STREET: _____		
II. DESCRIPTION OF CARRIER, COMPANY, OR INDIVIDUAL REPORTING				
4. FULL NAME			5. ADDRESS (Principal place of business)	
6. LIST YOUR OMC MOTOR CARRIER CENSUS NUMBER, REPORTING RAILROAD ALPHABETIC CODE, MERCHANT VESSEL NAME AND ID NUMBER OR OTHER REPORTING CODE OR NUMBER.				
III. SHIPMENT INFORMATION (From Shipping Paper or Packaging)				
7. SHIPPER NAME AND ADDRESS (Principal place of business)			8. CONSIGNEE NAME AND ADDRESS (Principal place of business)	
9. ORIGIN ADDRESS (If different from Shipper address)			10. DESTINATION ADDRESS (If different from Consignee address)	
11. SHIPPING PAPER/WAYBILL IDENTIFICATION NO.				
IV. HAZARDOUS MATERIAL(S) SPILLED (NOTE: REFERENCE 49 CFR SECTION 172.101.)				
12. PROPER SHIPPING NAME		13. CHEMICAL/TRADE NAME	14. HAZARD CLASS	15. IDENTIFICATION NUMBER (e.g. UN 2764. NA 2020)
16. IS MATERIAL A HAZARDOUS SUBSTANCE? <input type="checkbox"/> YES <input type="checkbox"/> NO			17. WAS THE RQ MET? <input type="checkbox"/> YES <input type="checkbox"/> NO	
V. CONSEQUENCES OF INCIDENT, DUE TO THE HAZARDOUS MATERIAL.				
18. ESTIMATED QUANTITY HAZARDOUS MATERIAL RELEASED (Include units of measurement)		19. FATALITIES	20. HOSPITALIZED INJURIES	21. NON-HOSPITALIZED INJURIES
22. NUMBER OF PEOPLE EVACUATED				
23. ESTIMATED DOLLAR AMOUNT OF LOSS AND/OR PROPERTY DAMAGE, INCLUDING COST OF DECONTAMINATION OR CLEANUP (Round off in dollars)				
A. PRODUCT LOSS	B. CARRIER DAMAGE	C. PUBLIC/PRIVATE PROPERTY DAMAGE	D. DECONTAMINATION/ CLEANUP	E. OTHER
24. CONSEQUENCES ASSOCIATED WITH THE INCIDENT: <input type="checkbox"/> VAPOR (GAS) DISPERSION <input type="checkbox"/> MATERIAL ENTERED WATERWAY SEWER				
<input type="checkbox"/> SPILLAGE <input type="checkbox"/> FIRE <input type="checkbox"/> EXPLOSION <input type="checkbox"/> ENVIRONMENTAL DAMAGE <input type="checkbox"/> NONE <input type="checkbox"/> OTHER				
VI. TRANSPORT ENVIRONMENT				
25. INDICATE TYPE(S) OF VEHICLE(S) INVOLVED: <input type="checkbox"/> CARGO TANK <input type="checkbox"/> VAN TRUCK/TRAILER <input type="checkbox"/> FLAT BED TRUCK/TRAILER				
<input type="checkbox"/> TANK CAR <input type="checkbox"/> RAIL CAR <input type="checkbox"/> TOFC/COFC <input type="checkbox"/> AIRCRAFT <input type="checkbox"/> BARGE <input type="checkbox"/> SHIP <input type="checkbox"/> OTHER				
26. TRANSPORTATION PHASE DURING WHICH INCIDENT OCCURRED OR WAS DISCOVERED:				
<input type="checkbox"/> EN ROUTE BETWEEN ORIGIN/DESTINATION <input type="checkbox"/> LOADING <input type="checkbox"/> UNLOADING <input type="checkbox"/> TEMPORARY STORAGE TERMINAL				
27. LAND USE AT INCIDENT SITE: <input type="checkbox"/> INDUSTRIAL <input type="checkbox"/> COMMERCIAL <input type="checkbox"/> RESIDENTIAL <input type="checkbox"/> AGRICULTURAL <input type="checkbox"/> UNDEVELOPED				
28. COMMUNITY TYPE AT SITE: <input type="checkbox"/> URBAN <input type="checkbox"/> SUBURBAN <input type="checkbox"/> RURAL				
29. WAS THE SPILL THE RESULT OF A VEHICLE ACCIDENT/DERAILMENT? <input type="checkbox"/> YES <input type="checkbox"/> NO				
IF YES AND APPLICABLE, ANSWER PARTS A THRU C.				
A. ESTIMATED SPEED:	B. HIGHWAY TYPE: <input type="checkbox"/> DIVIDED/LIMITED ACCESS <input type="checkbox"/> UNDIVIDED	C. TOTAL NUMBER OF LANES <input type="checkbox"/> ONE <input type="checkbox"/> THREE <input type="checkbox"/> TWO <input type="checkbox"/> FOUR OR MORE		SPACE FOR DOT USE ONLY

VII. PACKAGING INFORMATION: If the package is overpacked (consists of several packages, e.g. glass jars within a fiberboard box), begin with Column A for information on the innermost package.

ITEM	A	B	C
30. TYPE OF PACKAGING, INCLUDING INNER RECEPTACLES (e.g. Steel drum, tank car)			
31. CAPACITY OR WEIGHT PER UNIT PACKAGE (e.g. 55 gallons, 65 lbs.)			
32. NUMBER OF PACKAGES OF SAME TYPE WHICH FAILED IN IDENTICAL MANNER			
33. NUMBER OF PACKAGES OF SAME TYPE IN SHIPMENT			
34. PACKAGE SPECIFICATION IDENTIFICATION (e.g. DOT 17E, DOT 105A100, UN 1A1 or none)			
35. ANY OTHER PACKAGING MARKINGS (e.g. STC, 18/16-55-88, Y1.4/150/87)			
36. NAME AND ADDRESS, SYMBOL OR REGISTRATION NUMBER OF PACKAGING MANUFACTURER			
37. SERIAL NUMBER OF CYLINDERS, PORTABLE TANKS, CARGO TANKS, TANK CARS			
38. TYPE OF LABELING OR PLACARDING APPLIED			
39. IF RECONDITIONED OR REQUALIFIED	A. REGISTRATION NUMBER OR SYMBOL		
	B. DATE OF LAST TEST OR INSPECTION		
40. EXEMPTION/APPROVAL/COMPETENT AUTHORITY NUMBER, IF APPLICABLE (e.g. DOT E1012)			

VIII. DESCRIPTION OF PACKAGING FAILURE: Check all applicable boxes for the package(s) identified above.

41. ACTION CONTRIBUTING TO PACKAGING FAILURE <table border="0"> <tr> <td>A</td><td>B</td><td>C</td><td></td><td>A</td><td>B</td><td>C</td><td></td> </tr> <tr> <td>a.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>TRANSPORT VEHICLE COLLISION</td> <td>j.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>CORROSION</td> </tr> <tr> <td>b.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>TRANSPORT VEHICLE OVERTURN</td> <td>k.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>METAL FATIGUE</td> </tr> <tr> <td>c.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>OVERLOADING/OVERFILLING</td> <td>l.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>FRICTION/RUBBING</td> </tr> <tr> <td>d.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>LOOSE FITTINGS, VALVES</td> <td>m.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>FIRE/HEAT</td> </tr> <tr> <td>e.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>DEFECTIVE FITTINGS, VALVES</td> <td>n.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>FREEZING</td> </tr> <tr> <td>f.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>DROPPED</td> <td>o.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>VENTING</td> </tr> <tr> <td>g.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>STRUCK/RAMMED</td> <td>p.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>VANDALISM</td> </tr> <tr> <td>h.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>IMPROPER LOADING</td> <td>q.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>INCOMPATIBLE MATERIALS</td> </tr> <tr> <td>i.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>IMPROPER BLOCKING</td> <td>r.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>OTHER</td> </tr> </table>			A	B	C		A	B	C		a.	<input type="checkbox"/>	<input type="checkbox"/>	TRANSPORT VEHICLE COLLISION	j.	<input type="checkbox"/>	<input type="checkbox"/>	CORROSION	b.	<input type="checkbox"/>	<input type="checkbox"/>	TRANSPORT VEHICLE OVERTURN	k.	<input type="checkbox"/>	<input type="checkbox"/>	METAL FATIGUE	c.	<input type="checkbox"/>	<input type="checkbox"/>	OVERLOADING/OVERFILLING	l.	<input type="checkbox"/>	<input type="checkbox"/>	FRICTION/RUBBING	d.	<input type="checkbox"/>	<input type="checkbox"/>	LOOSE FITTINGS, VALVES	m.	<input type="checkbox"/>	<input type="checkbox"/>	FIRE/HEAT	e.	<input type="checkbox"/>	<input type="checkbox"/>	DEFECTIVE FITTINGS, VALVES	n.	<input type="checkbox"/>	<input type="checkbox"/>	FREEZING	f.	<input type="checkbox"/>	<input type="checkbox"/>	DROPPED	o.	<input type="checkbox"/>	<input type="checkbox"/>	VENTING	g.	<input type="checkbox"/>	<input type="checkbox"/>	STRUCK/RAMMED	p.	<input type="checkbox"/>	<input type="checkbox"/>	VANDALISM	h.	<input type="checkbox"/>	<input type="checkbox"/>	IMPROPER LOADING	q.	<input type="checkbox"/>	<input type="checkbox"/>	INCOMPATIBLE MATERIALS	i.	<input type="checkbox"/>	<input type="checkbox"/>	IMPROPER BLOCKING	r.	<input type="checkbox"/>	<input type="checkbox"/>	OTHER	42. 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43. HOW PACKAGE(S) FAILED <table border="0"> <tr> <td>A</td><td>B</td><td>C</td><td></td> </tr> <tr> <td>a.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>PUNCTURED</td> </tr> <tr> <td>b.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>CRACKED</td> </tr> <tr> <td>c.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>BURST/INTERNAL PRESSURE</td> </tr> <tr> <td>d.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>RIPPED</td> </tr> <tr> <td>e.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>CRUSHED</td> </tr> <tr> <td>f.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>RUBBED/ABRADED</td> </tr> <tr> <td>g.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>RUPTURED</td> </tr> <tr> <td>h.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>OTHER</td> </tr> </table>		A	B	C		a.	<input type="checkbox"/>	<input type="checkbox"/>	PUNCTURED	b.	<input type="checkbox"/>	<input type="checkbox"/>	CRACKED	c.	<input type="checkbox"/>	<input type="checkbox"/>	BURST/INTERNAL PRESSURE	d.	<input type="checkbox"/>	<input type="checkbox"/>	RIPPED	e.	<input type="checkbox"/>	<input type="checkbox"/>	CRUSHED	f.	<input type="checkbox"/>	<input type="checkbox"/>	RUBBED/ABRADED	g.	<input type="checkbox"/>	<input type="checkbox"/>	RUPTURED	h.	<input type="checkbox"/>	<input type="checkbox"/>	OTHER	44. PACKAGE AREA THAT FAILED <table border="0"> <tr> <td>A</td><td>B</td><td>C</td><td></td> </tr> <tr> <td>a.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>END. FORWARD</td> </tr> <tr> <td>b.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>END. REAR</td> </tr> <tr> <td>c.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>SIDE. RIGHT</td> </tr> <tr> <td>d.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>SIDE. LEFT</td> </tr> <tr> <td>e.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>TOP</td> </tr> <tr> <td>f.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>BOTTOM</td> </tr> <tr> <td>g.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>CENTER</td> </tr> <tr> <td>h.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>OTHER</td> </tr> </table>		A	B	C		a.	<input type="checkbox"/>	<input type="checkbox"/>	END. FORWARD	b.	<input type="checkbox"/>	<input type="checkbox"/>	END. REAR	c.	<input type="checkbox"/>	<input type="checkbox"/>	SIDE. RIGHT	d.	<input type="checkbox"/>	<input type="checkbox"/>	SIDE. LEFT	e.	<input type="checkbox"/>	<input type="checkbox"/>	TOP	f.	<input type="checkbox"/>	<input type="checkbox"/>	BOTTOM	g.	<input type="checkbox"/>	<input type="checkbox"/>	CENTER	h.	<input type="checkbox"/>	<input type="checkbox"/>	OTHER	45. WHAT FAILED ON PACKAGE(S) <table border="0"> <tr> <td>A</td><td>B</td><td>C</td><td></td> </tr> <tr> <td>a.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>BASIC PACKAGE MATERIAL</td> </tr> <tr> <td>b.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>FITTING/VALVE</td> </tr> <tr> <td>c.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>CLOSURE</td> </tr> <tr> <td>d.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>CHIME</td> </tr> <tr> <td>e.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>WELD/SEAM</td> </tr> <tr> <td>f.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>HOSE/PIPING</td> </tr> <tr> <td>g.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>INNER LINER</td> </tr> <tr> <td>h.</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>OTHER</td> </tr> </table>		A	B	C		a.	<input type="checkbox"/>	<input type="checkbox"/>	BASIC PACKAGE MATERIAL	b.	<input type="checkbox"/>	<input type="checkbox"/>	FITTING/VALVE	c.	<input type="checkbox"/>	<input type="checkbox"/>	CLOSURE	d.	<input type="checkbox"/>	<input type="checkbox"/>	CHIME	e.	<input type="checkbox"/>	<input type="checkbox"/>	WELD/SEAM	f.	<input type="checkbox"/>	<input type="checkbox"/>	HOSE/PIPING	g.	<input type="checkbox"/>	<input type="checkbox"/>	INNER LINER	h.	<input type="checkbox"/>	<input type="checkbox"/>	OTHER												
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IX. DESCRIPTION OF EVENTS: Describe the sequence of events that led to incident, action taken at time discovered, and action taken to prevent future incidents. Include any recommendations to improve packaging, handling, or transportation of hazardous materials. Photographs and diagrams should be submitted when necessary for clarification. ATTACH A COPY OF THE HAZARDOUS WASTE MANIFEST FOR INCIDENTS INVOLVING HAZARDOUS WASTE. Continue on additional sheets if necessary.

46. NAME OF PERSON RESPONSIBLE FOR PREPARING REPORT		47. SIGNATURE	
48. TITLE OF PERSON RESPONSIBLE FOR PREPARING REPORT		49. TELEPHONE NUMBER (Area Code)	50. DATE REPORT SIGNED